IMMUNIZING MORE CHILDREN

UNICEF

United Nations Children's Fund
Regional Office for South Central Asia
Unicef House, 73 Lodi Estate
New Delhi 110003 India
1984

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Children at Risk

Consistent with the UNICEF commitment to the survival, care and development of children everywhere, the annual spectre of some five million children dying unprotected against easily preventable diseases cannot be viewed with equanimity. At least an equal number survive these diseases only to be gripped by malnourishment and vulnerability to further cycles of infection. A large number of them are disabled, usually for life, through brain damage, paralysis, stunted growth, chronic lung infection, deafness or blindness.

In India each day some 750 children are affected by poliomyelitis. A few die but the future of nearly all of them is shattered. For those who survive live in quiet desperation, leading sadly diminished lives, their genetic potential destroyed for the want of a simple, inexpensive intervention by someone who *knew* enough and *cared* enough to take action.

Every two minutes in India there is a child death directly related to measles, that is, two out of every 100. Among malnourished groups, the fatal proportion is ten in 100.

Around 250,000 infants die each year of neonatal tetanus. Four times this number is the total tally of deaths in the country from this disease.

Hundreds of thousands of children in India are afflicted by tuberculosis. Those who do not die are prone to suffer permanent brain damage, or bone deformities. Whooping cough ravages the respiratory systems of hundreds of thousands of infants and children. Diphtheria, even today, kills huge numbers of children and leaves many more permanently affected with heart and brain damage.

This situation is a burden on social conscience and a drag on national development.

India launched the Expanded Programme on Immunization (EPI) in 1978. Currently, there are six diseases on the official schedule for progressive nationwide immunization: tuberculosis, polio, whooping cough, diphtheria, tetanus and typhoid.

Measles is mentioned in the immunization schedule but has not yet been formally included in EPI. The Indian Academy of Paediatrics has recently recommended that it should be. The government response is likely to be positive.

Immunization is expected to pick up unprecedented momentum in the Seventh Five Year Plan. There is reason to believe that the policy aim of universal immunization by the end of the present decade is achievable.

Infrastructure

EPI is administered by the Union Ministry of Health, where a small but well qualified team of health professionals assumes the responsibility for the programme. An annual review of the progress of EPI is arranged by the Union Ministry of Health with the participation of representatives of the States and Union Territories (usually the State EPI officers), the Directors of the Public Sector Vaccine Production Centres, the Directorate General of Health Services and UNICEF (refer Annexes 1 and 2).

After smallpox was eradicated, those who were responsible for this successful programme were placed in charge of implementing and coordinating EPI. In some States the officer responsible for maternal and child health (MCH) and family welfare was assigned the duties of EPI also, in view of the decision to bring together MCH and EPI.

At the district level, the implementation of EPI is one of the functions of the paramedical staff who were earlier responsible for smallpox eradication. This is true also of lower echelons of the infrastructure at the primary health centre (PHC) and subcentre levels. The District Health Officer coordinates the logistics, cold chain, accounting and reporting. In districts where multipurpose workers (MPW) are in position, immunization is part of their responsibility. In others it is the auxiliary nurse-midwife (ANM), the public health nurse (PHN) and the lady health visitor (LHV) at the PHC who share this responsibility, in addition to other tasks.

EPI is also implemented through the Social Welfare departments of the States (under the Integrated Child Development Services Scheme) with the help and support of the Primary Health Centres. In these blocks anganwadi workers, with the help of ANMs or village health guides, organize immunization camps for mothers and children in their jurisdiction. Though the immunization programme has been implemented for a number of years, it is only recently that the coverage has improved in terms of the number of children and mothers, and the range of vaccines and doses.

Incidentally, in almost all the States, BCG vaccination is not yet functionally integrated into the total EPI programme. BCG teams continue to report to the TB officer at the district level.

Management

While immunization is the responsibility of the States, the Ministry of Health and Family Welfare sets targets and controls vaccine supply from production centres (controlled by them) and through import. Immunization targets are determined by the Ministry. "The operational targets circulated to the state health authorities are based on the performance during the previous years and the infrastructure for the delivery of the immunization services available."* This is distinct from the epidemiological approach of identifying eligible groups (pregnant women and children below the age of 1 year) and trying to cover at least 85 percent in order to break the disease transmission chain. Against an eligible child population of 20.9 million, therefore, the target set is only 14 million (refer Annexes 3–7). The actual achievement in the case of DPT during 1982–83

* From "The Expanded Programme on Immunization: A Review", a publication of the Directorate General of Health Services, New Delhi, 1982.

(number of children receiving all the three doses) was 8.3 million or 59.5 percent of the operational target which was just 38.2 percent of the eligible population.

With regard to polio, the target for 1982–83 was 5 million. The actual achievement was 74.5 percent of this target or 17.7 percent of the eligible population. The corresponding figures for BCG are 88.3 percent and 18.8 percent respectively.

Tetanus toxoid is given to school girls and also in cases of surgical sterilization of women. These are not to be counted for EPI purposes. The eligible population was 23.9 million pregnant women while the target was 9 million. The actual achievement was 82.7 percent of the target or 39 percent of the eligible population.

Information on measles vaccination, which is yet to figure in the EPI schedule, is not available.

The current coverage is thus very low; only around a fourth of the eligible child population is immunized under EPI leaving the vast majority unprotected.

Vaccines

Vaccine production and supply is crucial. During 1982–83, supply of vaccines from all sources was:

DPT	35 million doses	
BCG	23 million doses	
DT	21.6 million doses	
TT	29.3 million doses	
Polio	16.4 million doses	(refer Annexes 8 and 9)

Perspective

In 1985, the government proposes to cover roughly 70 percent of the infant population with DPT vaccination. This is to increase progressively to 85 percent, which will be the minimum level to be maintained through 2000 AD. By 2000 AD, all pregnant women are proposed to be covered by TT.

Considering that at least 85 percent of the population needs to be covered for "herd" immunity, and that the maximum vaccine wastage will be 30 percent, there is a shortage of roughly 30 million doses of DPT based on current production capabilities.

Production capacity at both Kasauli and Coonoor is being augmented. Support to the Haffkine Bio-Pharmaceutical Corporation Limited (a government company in Bombay) is also increasing. Supplies of vaccine equipment and spare parts worth about $0.8 million are in the pipeline. These are expected to arrive by September 1984. Allowing for delays, additional production capacity is not likely to be available for use before mid-1986. This addition, when it comes, will help augment the DPT production capacity at Coonoor from 5 million to 10 million doses, and at Kasauli from 14 million to 28 million doses.

Subject to import policy, the vaccine shortfall to be imported would be approximately 30 million doses of DPT; 72 million doses of polio; 1.5 million doses of BCG and 24 million doses of the measles vaccine.

Cost of procurement of DPT, polio and measles vaccine

Amount that cannot be produced in India by 1985*

Vaccine	Deficit	Total cost Rs.	Total cost US $
DPT	30 million doses	36.3 million (5 ml ampoules)	3.6 million
Polio	40 million doses	16.2 million (10 ml ampoules)	1.6 million
Measles	18.4 million doses	36.8 million	3.7 million
	Total	89.3 million	8.9 million

*At 1983 prices
10% addition to allow for inflation=approximately US $ 10 million or Rs 100 million.

If 85 percent of the eligible population is to be immunized during 1984–85, it would cost about $ 17.6 million (Rs. 176 million). This assumes that the increase in indigenous production will not be available before 1986 and also that measles vaccine will continue to be imported. The directions in which support could be provided for attaining the target of covering 85 percent of the eligible population are:

- Import of vaccines in a phased manner for use not only in the formal health delivery system but also through the outlets of the Departments of Social Welfare and Rural Development of the Government of India and their counterparts at the State and district levels;
- Augmenting existing production capacity and supporting an efficient system for managing the cold chain from the factory to the child. This would mean augmenting the current cold chain facilities with refrigerators, walk-in coolers, vaccine carriers, etc.;
- Training. Many of the States and Union Territories are still to be covered by multi-purpose workers. In the districts where the EPI is being implemented, immunization is only one of several tasks to be performed by the functionaries. It will be necessary to organize training programmes for all those involved in child care and protection. This will involve organizing and supporting women's clubs, immunizing pregnant women and infants as close to their homes as possible, and intensive immunization programmes at family, village and block levels. Such programmes would need to fully utilize existing facilities at the training centres already established. These training institutions would also need to be strengthened and expanded through the training of trainers, provision of audio-visual aids like charts, films, video programmes and slides. Community participation in the programme will be necessary to achieve the national objective of total coverage.

Other possibilities for increasing operational capacity for immunization in India include:

- Mobilizing professional resources. Without additional inputs, performance can be increased by 30 percent. For example, the "pulse" strategy—which involves an annual three-month campaign—has resulted in increased performance in Vellore, Tamil Nadu; Dewas, Madhya Pradesh; Bidar, Karnataka; and Delhi;
- Mass media and cultural groups can be mobilized to create awareness and hence a demand for immunization;
- Professional associations can participate in immunization activities. For instance, the Indian Medical Association, the Indian Academy of Paediatricians and the Indian Nursing Association can mobilize paediatricians, private practitioners and nurses;
- Community health workers, anganwadi workers, nutrition workers and teachers can be mobilized to propagate awareness of immunization and to motivate people;
- Public sector undertakings which have a health infrastructure can be used to immunize children of workers' families;
- The private sector can also be invited to scale up EPI.

Additional resources required to provide 85 percent coverage in 1984–85 include:

- Use of alternative channels and strategies;
- Importation of additional vaccines;
- Purchase of more reusable glass syringes, needles and autoclaves, etc.;
- Funds for incidental expenses incurred during mass programmes;
- Strengthening the EPI infrastructure, particularly the cold chain and distribution of vaccine;
- Strengthening the capacity of various vaccine production units in India, and setting up additional production centres.

($ 25.5 million will be required in addition to $ 64.5 million budgeted by the GOI)

A working group of the Planning Commission is in the process of finalizing a paper on EPI, incorporating the priorities, financial outlays, the strategic considerations, ways of augmenting indigenous production and assuring needed importation of vaccines in the interim.

As a measure for preventing disability, the Ministry of Social Welfare is pursuing the aim of total coverage of the entire eligible population by polio vaccination. The drop-out rate for polio immunization is anywhere between 40 and 60 percent.

There has been positive experience in moving to scale at the district level e.g. Dewas (Madhya Pradesh), Bidar (Karnataka) and Delhi. It has been possible to establish that given the necessary human, material and fiscal resources, there is a good chance of replicating these examples. The target of universal immunization by 1990 is feasible.

Towards Universal Immunization

Immunization has become a programme of unusual priority—immunization of all children against all the six diseases: diphtheria, tetanus, whooping cough, poliomyelitis, tuberculosis and measles. Technologically, it is increasingly feasible to do so. But as the State of the World's Children Report points out, "Social break-throughs in the organization of communities, to ready them for immunization campaigns are as important as the technology of immunization itself".

UNICEF has been a steadfast partner in India's immunization programme. UNICEF considers immunizing against one disease without immunity to the others as wasteful. We believe that together with simple, low-cost, urgently needed measures like breast feeding, home management of diarrhoea and home monitoring of growth, immunization should make a big difference to infant mortality and the menace of malnutrition, morbidity and disability during childhood. Indeed a virtual revolution in child health and development seems possible if these measures are carried out with additional responsibilities recognized to feed families until they come to acquire the capacity to feed themselves, and to limit the family size.

On the basis of worldwide observation and experience, we conclude that all or any of these aims cannot be promoted as centralized, vertical, sectoral programmes. Indeed the central UNICEF strategy of basic services accepted by all the partners of the United Nations argues for a convergent thrust from a firm basis in the community. We believe that immunization must be promoted, not in isolation, but in conjunction with the other seven essential components of the concept of primary health care of which we have been, and are, co-promoters with WHO. To recall, these are relevant education; food and nutrition; water and sanitation; maternal and child health care including family planning; prevention and control of local endemic diseases; appropriate treatment of common diseases and injuries; and essential drugs. Every UNICEF assisted programme seeks to bring these elements together.

Experience also tells us that it may not always be possible or necessary to delay the initiation of action on one front until there is readiness for movement on all the others. What is important is to so design the programme that involvement by the community is possible in current and subsequent efforts to answer each of their basic needs. While it is obvious that immunization *per se* without other basic services is pointless, UNICEF believes, all the same, that properly developed, an immunization programme could be a

leading edge of primary health care, even as primary health care could be a leading edge of the basic services strategy.

UNICEF does not advocate a uniform programme design among or within countries, but certain programme attributes, like the communitarian dimension is, we feel, an invariable prerequisite for viable and positive result. This perception leads to some insights into past performance and future programming in immunization.

Moreover, in UNICEF India, we believe that the time for a concerted effort to overcome the difficulties, defaults and shortcomings of EPI has come. There is a national and political will to address them now. The statistics of performance speak for themselves. The failure rate seems to be unacceptably high, judged by any of the three usual criteria: the proportion of children immunized; the incidence of the diseases; the quality of vaccines.

Progress in immunization coverage has of course been achieved but not enough in relation to the tasks ahead. For example in 1982–83, of an estimated 20.1 million children under one year of age, only 8.3 million received three doses of DPT, 3.8 million received BCG and just over 3.7 million were given three doses of the polio vaccine. And of the estimated 23.4 million pregnant women, only 6.4 million were given two doses of tetanus toxoid to protect them and their babies from the deadly lockjaw.

There is, in addition, an area of near-total neglect, namely measles, though according to one estimate there are 14 million episodes a year and a quarter of a million fatal cases. The actual position in respect of measles as well as the other diseases might well be even worse than the figures generated in the health system. If programmes continue in linear extention of their present pattern, it is unlikely that the WHO target of universal immunization by 1990 will be achieved.

Yet we are of the opinion that this target is realistic enough to be seriously worked for, provided practical attention is urgently applied to the following programme components:

- Social preparation, acceptance and involvement. This should, in time, lead to parents insisting on immunization rather than being persuaded to accept it;
- Support to the health system, by other arms of government. This is found to be crucially important at and below the district level;
- Flexibility in approach for accelerated pace and enlarged coverage. This becomes essential to cope with the diversity of situations in India, as does de-centralized organization and responsibility;
- The bridging of gaps such as in vaccine production, vaccine distribution, equipment quality and supplies, access to new technology, improved techniques and skills, manpower planning, training, budgetary resources and programme content;
- Careful record-keeping and monitoring, e.g. immunization cards; judging performance of a primary health centre by, among other things, the immunization coverage achieved by it, as distinct from meeting targets of vaccine utilization, etc.

In this perception of what has gone before, and what might be, we would make our comments on specific issues, relevant to optimal UNICEF cooperation in the second half of the 1980s.

Vaccine availability

A coverage of 20 to 50 percent in a community leaves little assurance against the disease. The coverage achieved during 1982–83 has been recorded as only 38.2 percent for DPT, 39 percent for TT, 8.8 percent for BCG and 17.7 percent for polio. The aim must be to reach the "herd" immunity level. This level can be reached and must be planned for now if EPI is to be credible.

In this light, the levels of indigenous production, present and planned, seem to be inadequate. This is so even in the case of DPT where production and stock carried over from the previous year just about meet the modest target of 70 percent in 1983–84. Considering the lead time for additional capacity to be installed and for production and supplies to start, it is not too early to accelerate in this direction. We would propose national production of all the vaccines, reckoning backwards from the needs of full coverage by 1990 of the then child population. Without prejudice to this course of action, actual shortfall between availability and revised targets will have to be imported. The economic cost to the nation of not doing so would be far higher, in terms of deaths, disease, disability, stunting, loss of productivity, low returns on education and costs of rehabilitation, apart from the incalculable agony and frustration at the human level. We believe that resources must, and can be, found. UNICEF would be willing to stretch its own small resources to the full to participate in adequately strengthening the national capacity for vaccine production. UNICEF has already extended an assistance of $1.2 million in 1983 alone towards new vaccine production equipment for Kasauli and Coonoor. We would also propose that new capacity be planned in a geographically balanced manner.

Quality of vaccine

The proportion of "dead" vaccines must be fairly high, even within the modest coverage that is being currently attained. This inference derives from a number of studies and observations on the ground. The cold chain seems susceptible to be broken from the start. The factory sends the vaccine to the airport in ordinary, rather than refrigerated, trucks. There seem to be no cold storage facilities for vaccines even at the Delhi airport. Consignments lie for days at the airport before transmission to State capitals. The story is repeated on the journey to the district headquarters. Even towns connected by air do not receive vaccines by air, but often by road in unrefrigerated vehicles.

There is little assurance that the refrigerators in the primary health centres or at the district headquarters are in working order, for 35 to 65 percent of them are reported to be out of use at any one time. The provision of ice boxes and of ice itself is a problem in many places.

As there can be no compromise with the quality of vaccine and, therefore, the stability of the cold chain, UNICEF is anxious and willing to review and enhance the present scope of its participation in strengthening the cold chain. Our own assessment is that the

factory-to-district part of it will have to be thoroughly reshaped; cold rooms installed at Chandigarh, Delhi and other airports; a vaccines officer in New Delhi and at major centres; refrigerated road transport; and so on.

Administrative support

While the responsibility for immunization programmes rests as it should, with the Ministry of Health as the natural lead agency, we suggest that the concern should not be confined to the health system. In States where the health administration infrastructure is relatively strong, the immunization coverage is, for obvious reasons, better. But even here, the general administrative machinery at the district and block levels has to be geared to the task. Such pulling together becomes even more imperative in those situations where the health system itself may be weak. The partnership of departments like Rural Development and Social Welfare is more than desirable.

Where the coverage is low and the backlog of un-immunized children over one year is high, the approach to EPI has to be on an emergency footing and all the relevant resources of government have to be mobilized and applied at and below the district level. There have been positive examples of encouraging result, as described in the pages that follow. Such campaigns have to be thoroughly planned and prepared for, and mounted at the time of year when the climate is not too hot for vaccine life and parents are not in the midst of farming and other seasonal operations. Once the campaign approach has yielded result, the health system would have acquired enough confidence and contacts for continuing the work at the normal pace. But the question has to be addressed in each situation: is the conventional "cafeteria" approach—whereby vaccines are kept available and vaccinators kept on stand-by all year round—the most effective and economic in all local circumstances? However, whatever the strategy adopted, it will call for determined efficiency and professional integrity on the part of at least the key administrative personnel.

Social awareness and participation

There are excellent examples of total immunization coverage in village clusters when the initiative for basic health care has been assumed by voluntary organizations. They do not need motivation, but only a minimum of assistance. We suggest that three lines of action should be explored:

- Encourage and support more voluntary agencies working at the level of village or slum to assume the responsibility for immunization in well-defined areas;
- Invite and involve social service organizations to participate in immunization campaigns whether launched by the government or by voluntary effort;
- Build consciousness of the need for immunization into educational programmes.

Community participation is an overworked theme but an under-realized ideal. It is achieved when government structures and procedures adapt themselves to make popular participation possible and meaningful.

Scaling up through programme linkages

Given the state of coverage and infrastructure, advantage must be taken of the

pronounced interest which several on-going broad-spectrum programmes have in universal immunization. The number of ICDS blocks in the country is nearing a thousand. There are 70 districts in different stages of progress in the scheme for Social Inputs in Area Development. Another 50 districts are focussing on people-specific and area-based schemes under the aegis of different ministries, like the Integrated Rural Development Programme and specific programmes for tribal people, small farmers, marginal farmers and agricultural labour. Universal immunization could well be made a priority component in all these, as a result of political and policy priority. This could be a way to move immunization coverage to national scale.

Programme design and management

We have analyzed the sources and reasons for the success of immunization programmes in different settings:

- A programme with the full backing of the district administration in an area of relatively weak health infrastructure;
- A continuing programme in a district with relatively strong health infrastructure enjoying the cooperation of the relevant wings of government;
- An on-going programme run by a non-governmental agency.

In all the three, certain programme imperatives dominate, the more important of which we would like to mention:

- A comprehensive enumeration of infants and children and their immunization status, leading to a correct assessment of the initial and on-going pace and coverage to be achieved;
- An in-depth appraisal of the capacity, present and potential, to deliver the programme—in terms of health infrastructure, personnel sanctioned and in position, cold-chain stability, vaccine supply, availability of ice, refrigerators, cold boxes and other equipment, transport, techniques of vaccination, and supervisory competence;
- A detailed plan of action for each primary health centre (or a comparable area like that of an ICDS block) backed by practical orientation for the health personnel;
- A proper recording, reporting and reviewing system;
- And finally, an intensive awareness campaign to convince mothers *why healthy children should be immunized*, and where they can have the service. Every channel of audio-visual communication is used: folk-theatre, radio, films, television, video programmes, posters, stickers, songs, announcements in newspapers. This is the preparation for social participation. But participation is ensured by activating village committees consisting of representatives of panchayats, mahila mandals, school teachers and village elders. The school system must be geared to this purpose, with changes in curricula and participation of students. The time must come when superstition, ignorance and apathy end and all mothers ask for vaccination to be given to their babies. We have to hasten its advent.

For a gigantic operation like EPI in India, we cannot escape the question of financial resources. The five-point Action Programme proposed by the World Health Assembly last year underlines the need to invest adequate funds in EPI. Obviously, the present order of spending is insufficient. But on what basis could we reckon how much more money is needed? How are planners, financiers and policy makers to be persuaded that applying more resources would mean protection to more children? On the experience of other countries, we are convinced of the high cost-benefit ratio of spending on immunization. We suggest that it would be useful, indeed necessary, to arrive at good, firm figures of what it costs to immunize children in India—including all the elements of cost: manpower, supplies, transport, cold chain, capital and over-heads. This could be worked out for the alternative operational strategies: fixed centre; outreach or mobile team; seasonal; round-the-year; and so on.

The answer to the vastness of the problem lies in decentralized organization and devolution of responsibility, under a politically determined direction and purpose. India has the infrastructure and the resources. The time for the decisive thrust is now.

UNICEF would like to reaffirm its commitment to support India's progress towards universal immunization, but at the same time, we would like to review and reshape the pattern of past assistance, against a comprehensive plan of action. Our assistance over the current period consists of:

- Equipment and chemicals for manufacturing the DPT vaccine;
- Refrigerators to replace non-functioning imported models at PHCs;
- Deep freezers/ice-lined refrigerators for districts;
- Refrigerators for newly opened PHCs;
- Measles vaccine in limited quantities;
- Immunization kits for multi-purpose workers; and
- Training of district health officers and middle level management.

Quite simply, we do not derive much comfort from the effectiveness of the present pattern of our cooperation. And frankly, sometimes the rigidity of the operational pattern seems to be an end in itself, ousting the real objective of protecting children's lives and health. UNICEF would like its assistance to be woven into a "systems management" approach to the aim of universal immunization. To briefly restate UNICEF policy in the coming phase of EPI, we would like to gear our cooperation to three specific operational aims:

- First, strengthening the cold chain from the factory-end plus renewed emphasis on refrigerator maintenance at the primary health centre. This implies, among other measures, the improvement of operational management through systematic training;
- Second, closing the gap between vaccine supply and vaccine need for total immunization by enhancing production capacity urgently on a scale determined by the population rather than by the limitations of the present delivery system, and, in the interim, as necessary, by importation of the deficits in indigenous production;

- And third, exploring and supporting alternative methods of organizing the programme, with a view to relating it increasingly to generating and responding to people's demand for immunization. There are many alternative strategies: fixed centre, campaign, mobile, "cafeteria", etc. and there can be no adherence to a uniform conventional approach in all locations.

At its May 1983 session, the UNICEF Executive Board authorized country offices to promote and support immunization programmes till the level of immunity required to break the chain of disease transmission is achieved. We reiterate our commitment and look forward to cost-effective ways of translating it into practice as partners in a comprehensive programme that is immunologically effective, operationally sustainable and socially acceptable.

Dewas, Madhya Pradesh

Area Profile

Three of six rural blocks were selected	Bagli, Barotha and Sonkatch
Total population	350,000 in 600 villages
Child population (below 2 years)	25,000
Population density	118/km^2
Religion	predominantly Hindus
Literacy	
Male	29.8%
Female	10.3%
Per capita income	Rs. 828 (US $82) per annum
Occupations	predominantly agriculture
Infant mortality rate	135/1000 live births (for Madhya Pradesh)
Coverage before intensive immunization programme	25–30%
Disease prevalence	
Residual Polio cases	1.4/1000 population
Diphtheria, Pertussis, Tetanus	information not available

Infrastructures Utilized

The emphasis was on using the existing government and non-governmental infrastructures.

Administration at District Level

District Collector

Health

District Health Officer/ Civil Surgeon

Primary Health Centre Doctors

Block Extension Educators

Auxiliary Nurse Midwives

Student Nurses

Village Health Guides

Panchayat

District Panchayat and Welfare Officer

Block Development Officers

Sarpanchs (Village Headmen)

Chowkidars (Village Watchmen)

Administration

District Administrative Officer

Cold Chain and Vaccine Storage Officers

Transport Officers

Non-governmental Organizations

NPNK Yojana Samiti
(an NGO involved with the prevention of Polio)

Rotary Club of Dewas

The Process

Initiation

As a part of the International Year of Disabled Persons (IYDP) activities in 1981, the District Collector of Dewas initiated a series of "camps" to identify disabled persons. Nearly 3500 disabled persons attended the camps

The District Collector mobilized voluntary agencies, medical doctors, orthopaedic surgeons, physiotherapists, health personnel, banks and industries to provide treatment and rehabilitation services and to offer financial loans and training facilities to the disabled

The District Collector formulated a project proposal for the prevention, early detection, treatment and rehabilitation of childhood disabilities. The proposal was presented to UNICEF

The District Collector and UNICEF formed a Core Group to discuss the proposal

The Core Group consisted of the

District Collector
District Health Officer
District Panchayat and Welfare Officer
NPNK Yojana Samiti (NGO)

Planning

The Core Group selected immunization as the entry point for disability prevention, early detection and rehabilitation services

The Group decided that:

polio would be the major focus

DPT would be added because it also requires 3 doses

as advised by the State Health Department, BCG would be added for the 3rd round

3 out of 6 blocks would be selected in the initial phase to gain experience

polling booths and schools would be used as vaccination centres because these are easily accessible to the communities

everyone from district to village level would be involved: district authorities, block officials, locally elected village leaders, health workers, school teachers, village watchmen, mothers and children

the immunization programme would be carried out in the winter months to safeguard vaccine potency

Implementation

Selection of vaccination centres

252 polling booths and schools were selected as vaccination centres; 600 villages were covered by clustering 2–3 villages per centre

Formation of vaccination teams

17 teams were organized, with 3 back-up teams

each team consisted of an auxiliary nurse-midwife and 1–2 community health workers or nurse-trainees

doctors from primary health centres served as programme managers to guide and advise teams

Orientation and training

60 paramedical workers: 3-day orientation in management of cold chain, registration, maintenance of records, conducting immunization sessions

community workers (including village leaders, school teachers and village watchmen): 2-day orientation on awareness building

Cold chain

The cold chain consisted of:

refrigerators

thermocole vaccine carriers

cold boxes

a local ice factory to provide a continuous supply of ice

Publicity

Publicity for parents, children and community leaders involved the use of:

interpersonal communication during the survey

photo-exhibits, posters, banners and car-stickers

street plays and a recorded song

village watchmen serving as "town criers" to gather crowds

Immunization

Target population

0–2 years

(however, older children who came to the camps were not refused)

Vaccines provided:

OPV in 1st, 2nd, 3rd and mop-up rounds
DPT in 1st, 2nd and 3rd rounds
BCG in 3rd round

Schedule:

1st round	December 1982
2nd round	January 1983
3rd round	February 1983
Mop-up round	March and April 1983

Supplies:

reusable glass syringes were sterilized by autoclaving at the primary health centres. However, at the vaccination centres, some villagers insisted on seeing the syringes and needles boiled on the spot

colourful immunization cards were specially designed by the District

Collector. Duplicate cards were provided, one for the mother and one to be retained at the centre

Logistics:

on a fixed day announced in advance, all 17 immunization teams converged at one block

each team spent one day at each vaccination centre

one block was covered in one week

a shortage of health workers in the 3 selected blocks made it necessary to divert student nurses and paramedical workers from neighbouring areas

Monitoring

each team maintained a daily performance record

all 17 teams met during each week-end to review performance and problems

PHC doctors from the 3 selected blocks moved from centre to centre to monitor the performance and to offer advice and guidance to the immunization teams and to the mothers

the District Collector made frequent surprise visits to the vaccination centres to monitor the programme and to motivate the workers

Evaluation

After the 2nd round, in which a high drop-out rate was experienced, a small team carried out a sample survey to identify the reasons for the low turn-out. The reasons identified included the following:

many families left to seek seasonal employment in the sugar factories which are open only for a few months each year

festivals and weddings led to a great deal of travelling among the target families

migration of families to other areas occurred

illness in the family often prevented the mother from attending the camp

health workers were diverted to other important national programmes such as family planning. This led to a reduction in the teams' strength

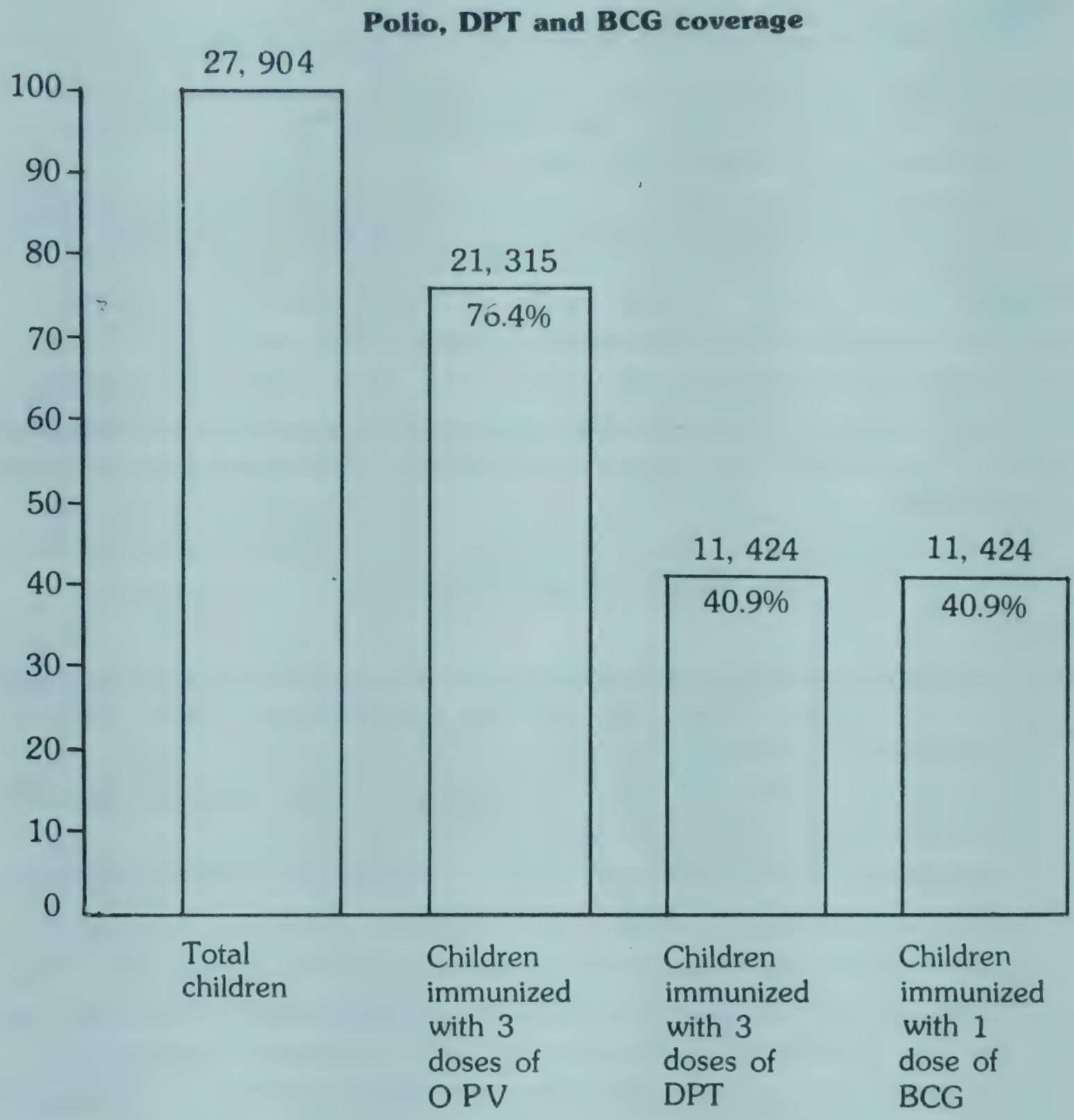
lack of sustained publicity efforts before the 2nd and 3rd rounds was another important factor

Expansion

The remaining 3 blocks of Dewas district are currently being covered beginning January 1984

On the basis of the Dewas experience, the Madhya Pradesh State Government has initiated plans to cover eleven ICDS blocks in 9 districts by 1984–85. Further expansion to additional areas will be undertaken in 1985–86. The plan is to cover the entire State by 1986–87.

Dewas immunization programme



Cost of UNICEF Inputs

Children immunized: approx. 11,424

Recurrent	**Cost** US $
Stationery	4,343
Transportation and other charges	326
Consultancy	371
Packing and forwarding of equipment and miscellaneous expenses	453
Cost of vaccines	1,044
Publicity material	1,129
Total	7,666

Cost per child immunized $0.67

One-time inputs

Utility life 5–8 years:	
Refrigerators	1,205
Voltage stabilizers	195
Motorcycles	2,713
Ice-lined refrigerators	674
Total	4,787

Estimate of Cases and Deaths Prevented

(with 40.9% coverage)*

Children in 3 blocks	27,904
Children exposed to risk	27,904
Attack rate of diseases	80%
Children affected if no immunization is done	22,320
Vaccine efficiency	90%
Coverage	41%
Effectivity of programme	36.9%
Cases of TB, polio, diphtheria, pertussis and tetanus prevented	8,251
Case fatality rate	2%
Deaths prevented	165

* These figures are calculated on the basis of the DPT coverage. If the polio coverage i.e. 76% is used, the figures will increase proportionately

Note : All figures are estimates. Calculations are based on WHO guidelines provided in EPI manual EPI/G/77.1

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Schedule and Allocation of Responsibilities

Time	Activity	Department/Agency	Personnel
December 1981—August 1982	Pre-project discussions and project formulation	District Collectorate, Regional Health Directorate, State Health Directorate, NGOs	District Collector, Joint Director Health Services, District Health Officer, District Panchayat Welfare Officer, 3 Block Development Officers, Rotary Club, Red Cross, UNICEF Programme Officers
August—September 1982	Development of publicity material and use of puppets, drama and local folk dances	District Collectorate, UNICEF	District Collector, District Medical Officer, UNICEF/PSC personnel
September 1982	Survey of beneficiaries	District Health Office, District Panchayat Welfare Office	District Health Officer, 3 Primary Health Centre doctors, District Panchayat Welfare staff
September 1982	Strengthening of cold chain	Regional Health Directorate, UNICEF	Joint Director Health Services, UNICEF Programme Officers
September 1982	Completion of logistics requirement, mapping of routes and location of immunization centres	District Panchayat Welfare Office	District Panchayat Welfare Officers
October 1982	Publicity and motivation	District Collectorate, Regional Directorate of Education, NGOs	District Collector, Panchayat Welfare staff, School teachers and students, Mahila Mandals

Time	Activity	Department/Agency	Personnel
October 1982	Orientation workshops for medical and para-medical personnel and block development staff	District Health Office, District Panchayat Welfare Office	Joint Director Health Services, Civil Surgeon, District Panchayat Officer
November 1982	Identification of ice factories, organization of immunization centres and provision of cold chain equipment and supplies	District Medical Office, District Panchayat Welfare Office, NGOs, UNICEF	District and Block Medical Officers and Paramedical staff, Panchayat Welfare staff, Mahila Mandals, Rotary Club and UNICEF personnel
December 1982—March 1983	Intensive immunization drive including one mop-up round	District Collectorate, Regional Health Directorate, Regional Directorate of Education, Police Department, NGO	District Collector, District and Block Medical and Para-medical personnel, District Panchayat Welfare personnel, School teachers, Village watchmen, Local village leaders
December 1982—March 1983	Planning and evaluation workshops of each immunization round	District Collectorate, Regional Health Directorate, UNICEF	District Collector, Regional Health Director, District and Block Medical Officers, Panchayat Welfare Officers and Immunization teams
May 1983	Audio-visual documentation of the experience and reporting of achievement	District Collectorate, Ministry of Information and Broadcasting, UNICEF	District Collector, National television team and UNICEF personnel

INTENSIVE IMMUNIZATION PROGRAMME

DISTRICT DEWAS (MADHYA PRADESH)

S.No. .....

Name .....

Father's Name .....

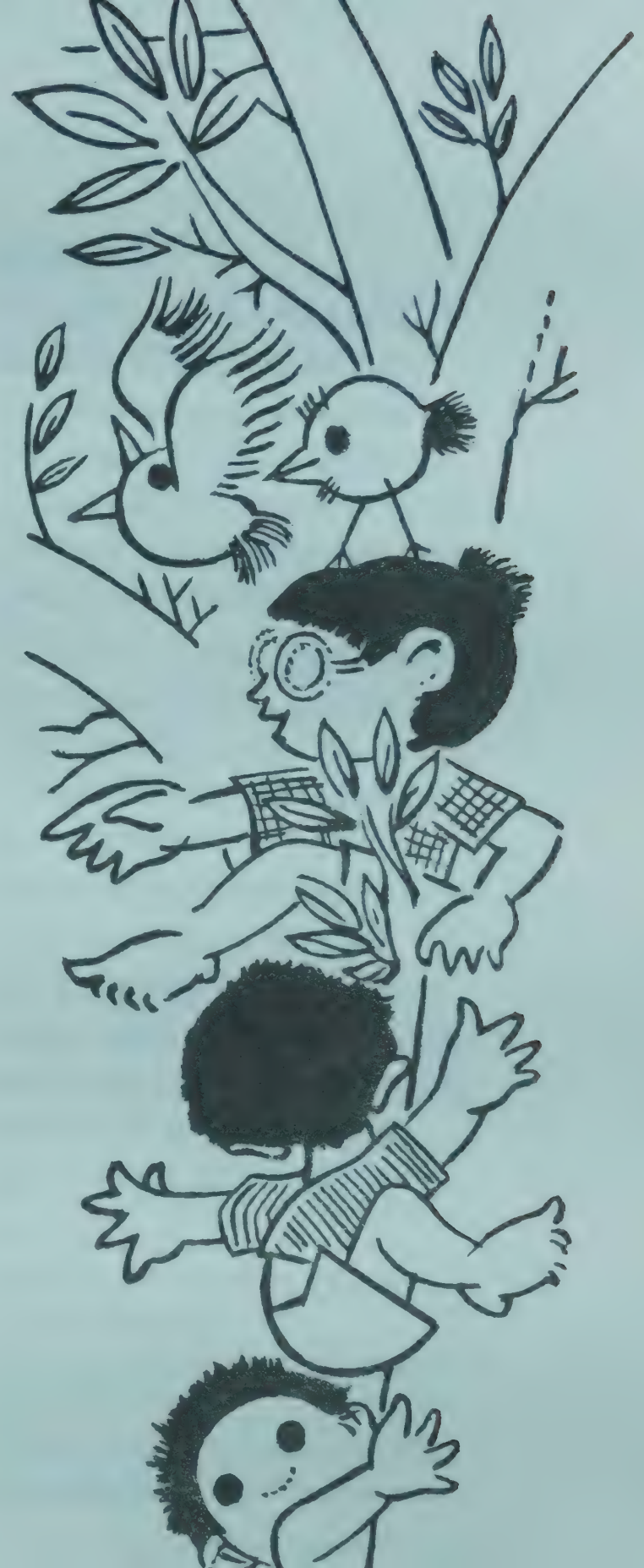
Age .....

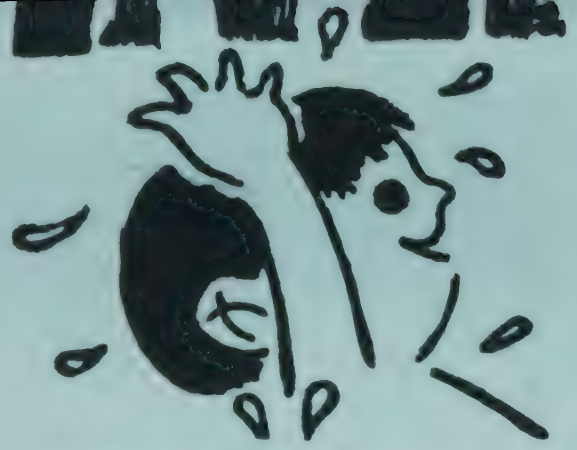
Village .....

Primary Health Centre/Block ..... District Dewas

Name of Centre, where immunized .....

Keep this card safely with you





IMMUNIZATION PROGRAMME (M.P.)

Date of Dosage :

S. No.	Vaccine	1st	2nd	3rd	Booster I	Booster II	Remarks
1	DPT (Triple)						
2	Polio						
3	D T (Double)						
4	TT						
5	BCG						
6	Typhoid						
7	Measles						
8	Others						
9							

Note: If you change your residence, take this card to the nearest Health Centre and your child will be immunized

Daily performance report

Name of Centre_____ Daily Work Report_____ Date:_____

No. of cases already registered_____ Team Sl.No._____

	DOSE				
	First	Second	Third	Booster	Total
1. Polio drops given to already registered children					
2. Polio drops given to new cases					
3. DPT vaccine given to already registered children					
4. DPT given to new cases					

Religion, Sex, Age-wise Distribution

POLIO			GROUP	DPT		
Male	Female	Total	Religion	Male	Female	Total
			Hindu			
			Muslim			
			Christian			
			Jain			
			Sikh			
			Others			
			Total			

POLIO			Distribution by Age	DPT		
Male	Female	Total	Age-Group	Male	Female	Total
			Below 1 year			
			1 - 2 years			
			2 - 3 years			
			3 - 4 years			
			4 - 5 years			
			Total			

POLIO				DPT		
Male	Female	Total	Group	Male	Female	Total
			Scheduled Caste			
			Scheduled Tribes			
			Backward			
			Others			
			Total			

Bidar, Karnataka

Area Profile

All rural blocks were selected	
Total population	854,930 in 600 villages
Child population (below 2 years)	49,092
Population density	153/km^2
Religions	
Hindus	77%
Muslims	18%
Christians	5%
Literacy	
Male	39%
Female	14%
Per capita income	Rs. 600 (US$ 60) per annum
Occupations	75% agriculture
Infant mortality rate	116/1000 live births (for Bidar district)
Coverage before intensive immunization programme	
DPT	28%
Polio	7%
BCG	29%
Common infant and childhood problems	tuberculosis, leprosy, poliomyelitis, blindness, protein malnutrition, anaemia, parasitic infestation

Infrastructures Utilized

The emphasis was on using the existing government and non-governmental infrastructures.

Administration at State and District Level

State Directorate of Health and Family Welfare

↓

Divisional Health and Family Welfare Office

↓

District Health and Family Welfare Office

- 5 General Hospitals
- 10 Primary Health Centres (PHC) (each covers a population of approx. 80,000)
  - 32 Primary Health Units (PHU) (each covers a population of approx. 15,000)
  - 245 Sub-Centres (each covers a population of approx. 5,000)

Non-governmental Organizations

Family Planning Association of India
VELMEGNA Society, Bidar
Methodist Hospital, Bidar
Rotary Club of Bidar

The Process

Initiation

District level

The Deputy Commissioner of Bidar initiated meetings between government and non-governmental agencies and UNICEF. Discussions focused on setting up a strategy to immunize all children aged 0–2 years with BCG, DPT and OPV

The Deputy Commissioner formed under his Chairmanship, a Steering Committee at the district level with the participation of the

District Health Officer
Assistant Development Commissioner
Assistant Director of Social Welfare
Local Member of Parliament
Local Member of Legislative Assembly
Bidar Integrated Rural Development (BIRD) Project Officer
UNICEF Project Officer
Representatives from NGOs

PHC level

A sub-committee was formed at the PHC, under the leadership of the PHC doctor, and included the following members: Block Development Officer; Tehsildar (Taluka Revenue Officer); Taluka Panchayat Chairman; Members of the Mahila Mandals (village women's groups); School teachers; and the Child Development Project Officer (ICDS)

Planning

The Steering Committee identified six major activities:

training of doctors and paramedicals
identification of all children 0–2 years
strengthening the cold chain
development of a system for supply and distribution of vaccines
establishment of a recording and monitoring system
publicity promotion

Implementation

Training

Phase 1 for 80 doctors in two batches: 5-day sessions on allocation of resources, management of the cold chain system, conducting vaccination sessions, conducting disease surveillance, supervision of performance, evaluation of vaccination coverage, and public participation

Phase 2 a 2-day training programme for 358 paramedical staff on health education, cold chain management, immunization techniques and maintenance of records

Phase 3 a 1-day orientation for personnel outside the health sector: child development project officers; anganwadi workers; members of the mahila mandals (women's groups); village family workers and school teachers

Survey

the standard WHO questionnaire was administered to any available adult in each household in 600 villages

children 0–2 years were identified as beneficiaries and immunization cards issued

for each PHC a list of children aged 0–2 years was prepared

rosters were prepared for every village

lists of beneficiaries were cross-checked by the Revenue Department

Cold Chain

The cold chain was strengthened to function more efficiently with the supply of:

deep freezers and refrigerators
vaccine carriers
cold boxes and ice packs
dial thermometers and liquid crystal thermometers

Publicity

Publicity for parents and community leaders involved the use of:

interpersonal communication during survey

house-to-house distribution of pamphlets

posters, banners, tinplate posters, cinema slides

street plays

radio coverage in the local language

group discussions by mahila mandals

meetings under the leadership of the Deputy Commissioner and District Health Officer

intensive use of microphones and loud speakers to publicize the programme

exhibitions

Immunization

Vaccines provided:

OPV and DPT in the 1st, 2nd, 3rd and mop-up rounds

BCG in the mop-up round to avoid drop-outs due to fear of injections and ulcers

Village immunization sites:

school buildings, panchayat offices and anganwadi centres

Supplies and resources:

immunization cards—100,000 sets; immunization registers—600; reusable glass syringes; sterilizers; needles; multipurpose workers' kits; 16 mm film

projector; tape recorder; slide projectors; public address system; voltage stabilizers; wick stoves; motorcycles; and bicycles

Immunization teams:

Each team covered 3 to 4 villages per day. The team consisted of:

one doctor either from the PHC or PHU
three vaccinators, one each for OPV, DPT and BCG
one paramedical worker for registration and recording

Supporting staff included:

child development project officer
ICDS supervisor
anganwadi worker
village family worker

Immunization camp:

a day before the camp, the health worker, village family worker, member of the mahila mandal, school teacher and anganwadi worker visited each identified household to remind the mothers about the camp

on the day of the camp the workers collected all the beneficiaries

after registration during the first round, the date for the next dose was also written on the card

immediately after administering the vaccines, paracetamol tablets were provided to the beneficiaries

children who failed to come were immediately followed-up by the supporting staff

Four immunization camps were held in each area:

	for 3 PHCs	for 7 PHCs
1st round	August 1983	December 1983
2nd round	September 1983	January 1984
3rd round	October 1983	February 1984
Mop-up round	November 1983	March 1984

Monitoring

daily meetings were held to monitor the performance of the immunization teams and to correct errors observed. The leader of each team reported to the medical officers of their respective Primary Health Centres

meetings were held between rounds to review performance and to plan for the next round

Evaluation

An immunization coverage survey will be undertaken by St. John's Medical College, Bangalore, in April 1984

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Follow-up

Intensive immunization will be done every year

Regular health-care infrastructure will be strengthened to provide immunization services to all new-borns

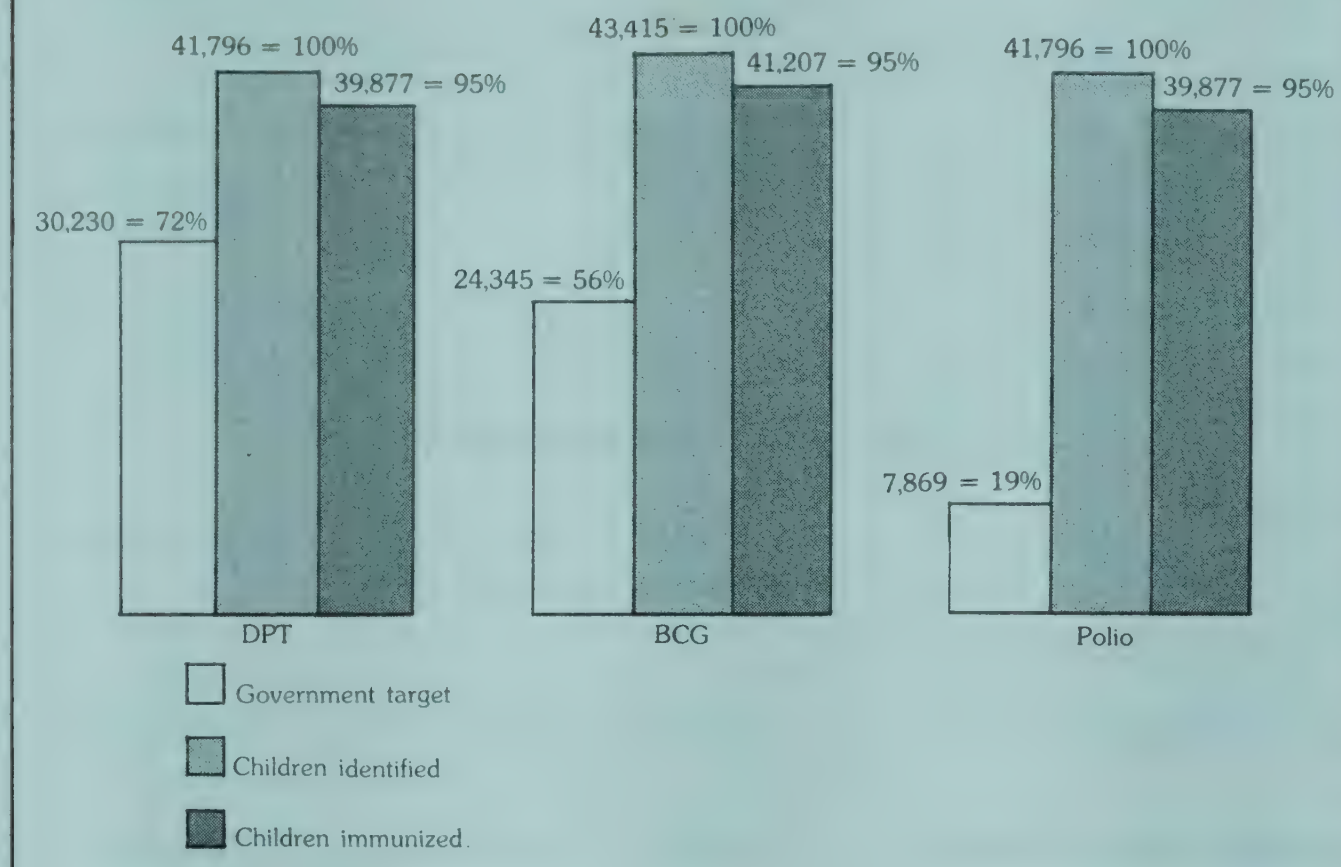
Traditional birth attendants and multipurpose workers will be trained to report on new births and to ensure optimal utilization of health and welfare facilities

Health education will be provided regularly to communities to:

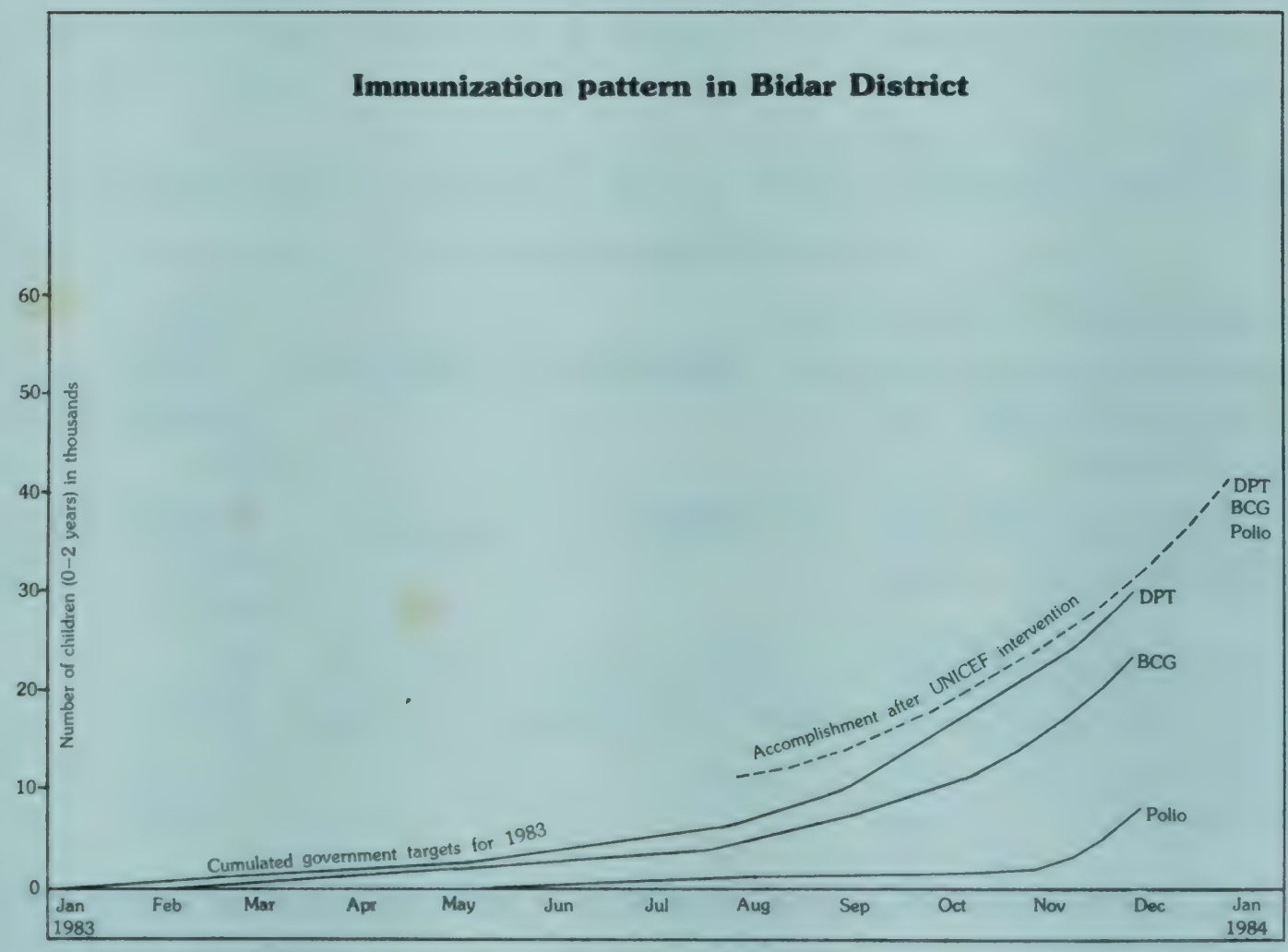
- sustain the momentum of the immunization programme, and
- create awareness and receptivity for the introduction of other basic services

Bidar immunization programme

DPT, BCG and polio coverage



Immunization pattern in Bidar District



Cost of UNICEF Inputs

Children immunized: approx. 40,000

Recurrent	**Cost** US $
Survey	—
Immunization cards	6,000
Training	3,000
Promotional activity	11,890
Total	20,890

Cost per child immunized: $ 0.50

One-time inputs

Utility life 3–5 years:

Deep freezer	510
Refrigerators	2,410
Hypodermic syringes	125
Sterilizers	2,790
Vaccine carriers with ice packs	250
Total	6,085

Estimate of Cases and Deaths Prevented

(with 95% coverage)

Total children in 10 PHCs (0–2 years)	49,000
Children immunized before intensive immunization programme	7,000
Children exposed to risk	42,000
Attack rate of disease	80%
Children affected if no immunization is done	33,600
Vaccine efficiency	90%
Coverage	95%
Effectiveness of the intensive immunization programme	86%
Cases of TB, polio, diphtheria, pertussis and tetanus prevented	28,896
Case fatality rate	2%
Deaths prevented	578

Note: All figures are estimates. Calculations are based on WHO guidelines provided in EPI Manual EPI/G/77.1

Schedule and Allocation of Responsibilities

Activity	Period	Personnel
Initial planning and formation of Steering Committee	1st week of May'83	Deputy Commissioner District Health Officer State EPI Officer Deputy Director Education Asst. Director Social Welfare BIRD Project Officer UNICEF
Survey of beneficiaries	2nd week of May/ 1st week of June'83	PHC/PHU doctors Multipurpose Workers Village accountants
Printing and supply of cards	2nd week of May'83	BIRD Project Officer
Formulation of project proposal for UNICEF intervention	3rd week of May'83	Deputy Commissioner District Health Officer State EPI Officer
Block level detailed plan for promotional activity	3rd week of May'83	Deputy Commissioner District Health Officer BIRD Project Officer UNICEF
Recording of beneficiaries in PHC	2nd week of June'83	PHC doctors District Health Officer
Indent of vaccines to Directorate of Health Services	3rd week of June'83	District Health Officer State EPI Officer
Steering Committee meeting	4th week of June'83	Deputy Commissioner District Health Officer State EPI Officer Deputy Director Education Asst. Director Social Welfare BIRD Project Officer UNICEF
Orientation meeting of block development staff and NGOs	4th week of June'83	Deputy Commissioner District Health Officer BIRD Project Officer

Activity	Period	Personnel
Identification of vaccination centres, beneficiaries, centrewise and route map	1st week of June'83	Deputy Commissioner District Health Officer PHC doctors Asst. Director Social Welfare BIRD Project Officer
Launching publicity campaign	1st week of July'83	Deputy Commissioner District Health Officer BIRD Project Officer Asst. Director Social Welfare
Arranging premises at PHC headquarters for boarding and lodging	2nd week of July'83	District Health Officer PHC doctors Asst. Director Social Welfare
Assignment of transport for PHC	2nd week of July'83	Deputy Commissioner District Health Officer Asst. Director Social Welfare BIRD Project Officer
Intensification of publicity and motivational campaign	3rd week of July'83	Deputy Commissioner District Health Officer BIRD Project Officer Director Public Relations Deputy Director Education Child Development Project Officer
Organization and establishment of vaccination centres	3rd week of July'83	Deputy Commissioner District Health Officer PHC doctors
Steering Committee meeting	3rd week of July'83	Deputy Commissioner District Health Officer State EPI Officer Deputy Director Education Asst. Director Social Welfare BIRD Project Officer UNICEF
Procurement of supplies and equipment	3rd week of July'83	Deputy Commissioner District Health Officer UNICEF
Orientation workshop for vaccination teams	4th week of July'83	District Health Officer PHC/PHU doctors

Activity	Period		Personnel
Orientation workshop for block development staff (logistics)	4th week of July'83		Deputy Commissioner District Health Officer PHC doctors
Implementation	for 3 PHCs	for 7 PHCs	
First dose DPT, polio			Deputy Commissioner District Health Officer
immunization	1–10 Aug.'83	1–10 Dec.'83	PHC/PHU doctors Child Development Project
evaluation	15–18 Aug.'83	11–18 Dec.'83	Officer BIRD Project Officer Deputy Director Education
Second dose DPT, polio			Deputy Commissioner District Health Officer
immunization	1–10 Sept.'83	5–10 Jan.'84	PHC/PHU doctors Child Development Project
evaluation	11–18 Sept.'83	11–18 Jan.'84	Officer BIRD Project Officer Deputy Director Education
Third dose DPT, polio and BCG			Deputy Commissioner District Health Officer
immunization	1–10 Oct.'83	1–10 Feb.'84	PHC/PHU doctors Child Development Project
evaluation	11–18 Oct.'83	11–18 Feb.'84	Officer BIRD Project Officer Deputy Director Education
Mop-up session	1–10 Nov.'83	1–10 Mar.'84	Deputy Commissioner District Health Officer PHC/PHU doctors Child Development Project Officer BIRD Project Officer Deputy Director Education
Compilation of records at district headquarters	20–30 Nov.'83	20–30 Mar.'84	Deputy Commissioner District Health Officer PHC/PHU doctors
Immunization coverage survey	April 1984		St. John's Medical College, Bangalore

Delhi

Area Profile

Two areas were selected	
Trilokpuri	an urban resettlement colony
Khanjawla	a rural block
Total population	250,000
Child population (below 2 years)	11,274
Population density	4178/km^2
Religion	predominantly Hindus
Literacy	
Male	75.4%
Female	30.7%
Per capita income	majority below Rs. 1200 (US $ 120) per annum
Occupations	46.9% government employees 21.4% petty traders 16.6% unskilled labourers
Infant mortality rate	50/1000 live births (for the Union Territory of Delhi which includes residential Delhi)
Coverage before intensive immunization programme	22.1%
Disease prevalence	
Residual Polio cases	3.72/1000 population
Diphtheria, Pertussis, Tetanus	information not available

Infrastructures Utilized

The emphasis was on using existing government and non-governmental infrastructures.

Key agencies:

Department of Social Welfare (the Integrated Child Development Services Scheme)

Municipal Corporation of Delhi (the Maternity and Child Health centres)

Administration

Union Ministry of Social Welfare at the national level

Department of Social Welfare in the State

Social Welfare Officer or Development/Planning Officer in the District

Project/Block/Ward

Primary Health Centre (PHC)
4 Doctors (including one for ICDS)
6 Lady Health Visitors (LHVs)
Sub-Centre
6 Auxiliary Nurse Midwives (ANMs)

Child Development Project Officer (CDPO) (covers a population of approx. 100,000)
4–5 Supervisors (In charge of 20–25 Anganwadi Workers)
100 Anganwadi Workers (AWWs) (each covers a population of approx. 1000)
Helpers

Block Development Officer (BDO)

Non-governmental Organizations

Amar Jyoti Trust (an NGO for the rehabilitation of the orthopaedically disabled)

Delhi Catholic Archdiocese.

The Process

Initiation

The Lt Governor of Delhi initiated meetings between several government and non-governmental agencies and UNICEF. Discussions focused on designing a proposal for the overall development of women and children in Delhi

The Chief Secretary of the Union Territory of Delhi formed a Central Working Group with the Development Commissioner as Chairperson

The Central Working Group consisted of the

- Director, Health Services, Delhi Administration
- Director, Social Welfare, Delhi Administration
- Director, Delhi Development Authority Slum Improvement Board
- Deputy Health Officers, Municipal Corporation of Delhi
- Honorary Secretary, Delhi Council for Child Welfare
- Head, Department of Social and Preventive Medicine, Lady Hardinge Medical College, New Delhi
- Managing Trustee, Amar Jyoti Trust (NGO)

Planning

The Central Working Group identified seven major activities:

- intensive immunization
- training of traditional birth attendants
- income generating activities for women
- disability prevention and rehabilitation
- mobile creches
- child-to-child activities
- water and latrines

Intensive immunization was selected as the entry point for community development efforts

Planning by the Central Working Group included

Decisions on the immunization strategy:

- conducting house-to-house surveys to identify beneficiaries
- using computers for effective maintenance of records
- forming local working groups
- using the ICDS infrastructure for delivery of services
- using autoclaved glass (reusable) syringes

Allocating responsibilities to individual departments/agencies

Selecting locations on the basis of:

high infant morbidity and mortality rates
lack of access to health facilities
availability of ICDS infrastructure

The Local Working Groups consisted of the

State EPI Officer, Delhi Administration
Child Development Project Officer, ICDS
Medical Officer-in-charge Health Centre, Municipal Corporation of Delhi
Managing Trustee, Amar Jyoti Trust
Member, Delhi Catholic Archdiocese

Planning by the Local Working Group included

Action plans:

pre-testing of survey forms
scheduling of camps
formation of immunization teams

Logistics and deployment:

estimation and deployment of vaccine, manpower, equipment and supplies, all based on the results of the survey

Implementation

Survey

each and every house within the area was numbered

a pre-coded questionnaire was administered to mothers in households having one or more children below the age of 6 years

children 0–2 years were identified as beneficiaries

Computerization of data

Data collected through the survey were analyzed by the computer. The computer print-outs:

provided detailed lists of beneficiaries according to the anganwadi number and house number

were used as registration sheets during the immunization camp

Orientation and training

13 doctors: 9-day training in management and implementation of EPI

40 paramedical workers (lady health visitors and auxiliary nurse-midwives): 2-day orientation on management of cold chain, registration, maintenance of records, conducting immunization sessions

10 ICDS supervisors and 214 anganwadi workers: orientation on conducting house-to-house surveys, registration of children and awareness building

Cold chain

A simple cold chain was established using:

refrigerators
locally available thermocole vaccine carriers
cold boxes with a cold life of 5 days
local ice depots for a continuous supply of ice

Publicity

Publicity for parents and community leaders involved the use of:

interpersonal communication during the survey
house-to-house distribution of pamphlets
posters, banners and cinema slides
street corner puppet shows
rehabilitation camps for the orthopaedically disabled

Immunization

Vaccines provided:

OPV and DPT in 1st, 2nd, 3rd and mop-up rounds
BCG and measles in mop-up round to avoid drop-outs due to fear of injections and ulcers

Location:

ICDS anganwadis were used as immunization centres

Supplies and resources:

reusable glass syringes, sterilized by autoclaving, were used for immunization: one needle and syringe was used per child, to prevent abscesses

computer print-outs were used for registration of children for systematic maintenance of records and follow-up. This enabled the anganwadi worker to identify exactly which child had not received a particular dose of vaccine

Immunization teams

Five teams were used for each area. Each team covered 2 anganwadis per day. The team consisted of:

one lady health visitor to give DPT injections
one auxiliary nurse-midwife to administer polio drops
one ICDS supervisor to register each child and to fill in the immunization cards
one ICDS anganwadi worker to collect beneficiaries

Schedule

A monthly schedule was prepared in advance. The schedule included the day, date and time of the immunization camp at each anganwadi centre

Immunization camp

a day before the camp, the anganwadi worker visited each identified household to remind the mothers about the camp

on the day of the camp the anganwadi worker collected all the beneficiaries

after registration, immunization cards were made for each beneficiary. The date for the next dose was also written on the card

immediately after administering the vaccines, paracetamol tablets were provided to the mothers of the beneficiaries, to be used in case of post-immunization fever

children who failed to come were immediately followed-up by the anganwadi worker

Four immunization camps were held in each area:

1st round	December 1983
2nd round	January 1984
3rd round	February 1984
Mop-up round	March 1984

Monitoring

daily meetings were held to monitor the performance of the immunization teams and to correct errors observed. LHVs and ANMs reported to the medical officers of their respective health centres

meetings were held between rounds, to review the performance and to plan for the next round. Local Working Groups met with immunization teams and anganwadi workers

Evaluation

Evaluation will be undertaken by Lady Hardinge Medical College, New Delhi, in April 1984

Passive Surveillance

Records will be maintained on all reported cases of EPI diseases over a period of one year, to assess the impact of the immunization programme on morbidity and mortality

Surveillance will be undertaken by the Municipal Corporation of Delhi (through the medical centres) and the Directorate of Social Welfare (through the ICDS infrastructure)

Maintenance

Once the backlog has been cleared through intensive immunization

Intensive immunization programmes will be held every winter

Regular health care infrastructure will be strengthened to provide immunization services to all new-borns and to eligible immigrants

Traditional birth attendants will be trained to report on new births and to ensure optimal utilization of health and welfare facilities

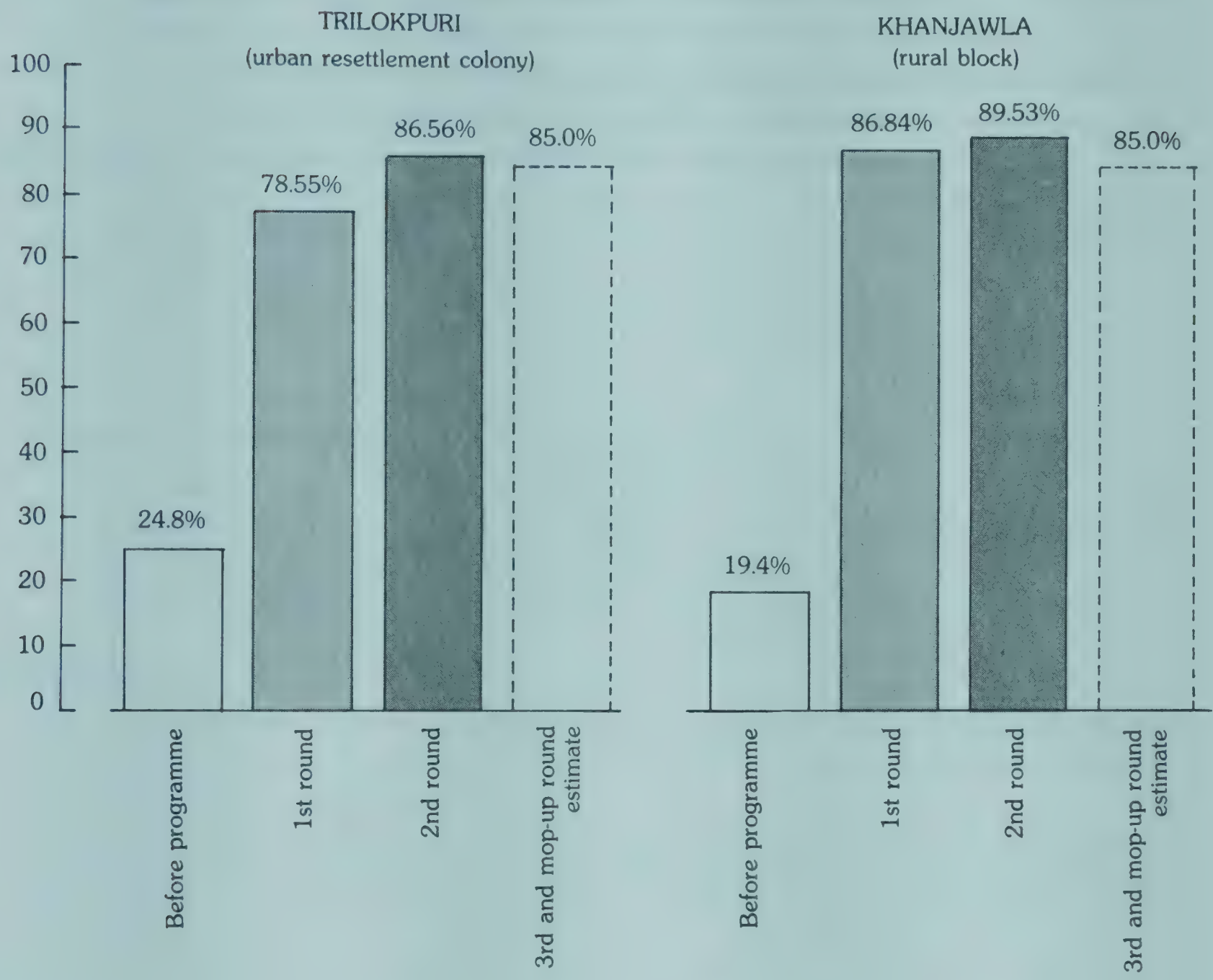
Health education will be provided regularly to communities to:

sustain the momentum of the immunization programme, and

create an awareness and receptivity for the introduction of other basic services.

Delhi immunization programme

Polio and DPT coverage



Cost of UNICEF Inputs

Children immunized: approx. 8000

Recurrent		**Cost** US $
Survey		240
Thermocole boxes		144
Needles		233
Immunization cards		733
Expertise for planning, monitoring and documentation		3312
Publicity		4086
Miscellaneous		438
	Total	9186

Cost per child immunized $ 1.14

One-time inputs

Utility life 3–5 years:		
Cold boxes		540
Autoclaves and dressing drums		954
Hypodermic syringes		1509
Mega-mikes		160
Refrigerators		1606
	Total	4769
Utility life 8–10 years:		
3 Mini buses to be used in 7 programmes	Total	17912

Estimate of Cases and Deaths Prevented

(with 85% coverage)

Total children in 2 areas (0–2 years)	11274
Children immunized before intensive immunization programme	2652
Children exposed to risk	8622
Attack rate of diseases	80%
Children affected if no immunization is done	6898
Vaccine efficiency	90%
Coverage	85%
Effectiveness of the immunization programme	76.5%
Cases of TB, polio, diphtheria, pertussis and tetanus prevented	5277
Case fatality rate	2%
Deaths prevented	106

Note: All figures are estimates. Calculations are based on WHO guidelines provided in EPI manual EPI/G/77.1

Schedule and Allocation of Responsibilities

Time	Activity	Department/Agency	Personnel
May-Aug. 1983	Project formulation	Directorate of Health Services	Director Health Services
		Municipal Corporation of Delhi	Deputy Health Officer
		Directorate of Social Welfare	Director Social Welfare
		UNICEF	Programme Officer
Sept.-Oct. 1983	Orientation of anganwadi workers and surveyors	Directorate of Social Welfare	Child Development Project Officer
		Council for Social Development (autonomous research organization)	Senior Research Officer
Oct. 1983	Development of publicity material	Directorate of Health Services	Director Health Services
		UNICEF	State EPI Officer PSC personnel
Sept.-Oct.1983	Survey	ICDS project staff	Anganwadi Workers and Supervisors
		Amar Jyoti Trust	National Service Scheme volunteers
Nov. 1983	Analysis and interpretation of data	Council for Social Development	Senior Research Officer
		Municipal Corporation of Delhi	Deputy Health Officer
		UNICEF	Programme Officer
Nov. 1983-March 1984	Publicity and motivation	Directorate of Social Welfare	Child Development Project Officers Supervisors and Anganwadi Workers
		Municipal Corporation of Delhi	Doctors, Lady Health Visitors Auxiliary Nurse Midwives

Time	Activity	Department/Agency	Personnel
Nov. 1983-Feb. 1984	Supply of vaccine	Directorate of Health Services	State EPI Officer
Dec. 1983-Mar. 1984	Intensive immunization	Municipal Corporation of Delhi Directorate of Social Welfare	Lady Health Visitors Auxiliary Nurse Midwives Supervisors and Anganwadi Workers
Jan.-March 1984	Rehabilitation camps	Amar Jyoti Trust	Medical, Paramedical and other volunteers
April 1984	Evaluation	Lady Hardinge Medical College	Statistician and Interns
April 1984-March 1985	Passive surveillance	Municipal Corporation of Delhi Directorate of Social Welfare	Doctors, Lady Health Visitors Auxiliary Nurse Midwives Child Development Project Officers Supervisors and Anganwadi Workers

Job Responsibilities of Immunization Team

Health Staff	
Lady Health Visitor (trained paramedical worker of the Municipal Corporation of Delhi)	Give DPT injection Prepare daily performance report Act as team leader and take independent decisions as and when required
Auxiliary Nurse Midwife (trained paramedical worker of the Municipal Corporation of Delhi)	Give oral polio drops Distribute Paracetamol tablets
ICDS Staff	
Supervisor	Registration of cases on computer sheets Filling of immunization cards Supervision of anganwadi worker
Anganwadi worker (community level worker responsible for a population of 1000)	Collection of registered children on the predecided date, place and time Follow-up of children after immunization Feedback to supervisor regarding immunized children

Sample of computer print-out

TRILOKPURI

ANG	H.NO.	CHILD NAME	AGE(MONTHS) BELOW 24 MNTHS	AGE(MONTHS) ABOVE 24 MNTHS	SEX	IMMUNUSATION STATUS B.C.G.	D.P.T.	PULIO
19	289	SUMINDAR		48	M	NO		
		BABY		36	F	NO		
19	289	GEETA	24		F	NO		
19	293	MANJEET SING		36	M	YES	1	1
19	294	SURJEET		36	M	YES	1 2	1 2
19	295	NIYODH		48	M	YES	1 2 3	1 2 3
		NISH KAUR		36	F	YES	1 2 3	1 2 3
19	297	ASHA		36	F	YES	1 2	1 2
		PAPPU	24		M	YES	1 2	1 2
19	302	CHARN SINGH		60	M	YES	1 2 3	1 2 3
		SANGITA	07		F	YES	1 2 3	1 2 3
19	323	PUTALI		48	F	NO	1	1
		DALIP		36	M	NO	1	1
19	326	SUSHMA		48	F	YES	1	1
19	328	AMARJIT		60	M	YES	1 2	1 2
19	329	PAPPU		36	M	YES	1	1
19	333	PANNO		36	M	YES	1 2 3	1 2 3
19	337	RANJEET		48	M	YES	1 2 3	1 2 3
		RAVINDAR	24		M	NO		
19	467	SHASHI SINGH		36	F	YES	1 2	1 2
		SUKHVIR	12		M	NO		
		HARJIT	02		M	NO		

Daily performance report

AREA_____ DATE_____

Anganwadi No.	Children 0-2 Registered	Children registered in this round	Children Given 3rd dose in			D.P.T.Given			O.P.V.Given			Child Ill	Dead	Left Area	Remarks (if any)
			1st round	2nd round	3rd round	1	2	3	1	2	3				

(Signature)

Name of L.H.V.:_____

DEVELOPMENT OF WOMEN AND CHILDREN IN DELHI REGION
INTENSIVE IMMUNISATION PROGRAMME
SURVEY FORM (FAMILY AS UNIT)

PARTICULARS OF FAMILY

1 ☐ (1) Area _____ (2) Complete Postal Address _____

2-6 ☐☐☐☐☐ _____ _____

(3) Father's Name _____ (4) Mother's Name _____

7-8 ☐☐ 9-10 ☐☐ (5) Age _____ (6) Age _____

11 ☐ (7) Religion

1. Hindu
2. Muslim
3. Sikh
4. Christian
5. Others

12 ☐ (8) Whether Schedule Caste/Tribe: 1. Yes 2. No

(9) Education of Father (10) Education of Mother

13 ☐ 14 ☐

1. Illiterate
2. Primary
3. Middle
4. Higher Secondary
5. Graduate
6. Technical
7. Other

(11) Occupation of Father (12) Occupation of Mother

15 ☐ 16 ☐

1. Unemployed
2. Labourer
3. Farmer
4. Business
5. Private Enterprise
6. Government Servant
7. Technical
8. Other

17 ☐ 18 ☐ (13) Total Number of Earning Members: _____

19-22 ☐☐☐☐ (14) Total Monthly Income: _____

23-24 ☐☐ (15) Total Number of Family Members: _____

(16)

Age	Total	Working	Non-Working	Student
25-28 Above 14 Years				
29-32 6 - 14 Years				
33-34 2 - 6 Years				
35 0 - 2 Years				

/.....

(17) IMMUNISATION STATUS: (Children 0 - 6 Years)

Sl	Name	Age in mnt	Sex	Imm Crd	Place of Imm.	BCG Scr	DPT	OPV	Mother TT Dur. Preg	Del cond. at
			1.M 2.F	1. Yes 2. No	1. Hosp 2. Home 3. Cent	1. Yes 2. No	0 1 2 3	0 1 2 3	1. Yes 2. No	1. Home 2. Hosp
36-45 1.										
46-55 2.										
56-65 3.										
66-75 4.										
80										

I.D 1-5

(18) Reasons for not giving immunisation: (Code only two reasons)

6 ☐
7 ☐

1. Gone Out
2. Distance too much
3. No time
4. Vaccine not available
5. No faith
6. Child Sick
7. Not aware
8. Other (Specify)_____

(19) Nearest Dispensary or hospital: (name)_____

8 ☐ (20) Distance_____(Kms)

(21) Where does the family get treatment: (Code 1 for yes & 0 No)

9 ☐ 1. Dispensary
10 ☐ 2. Hospital
11 ☐ 3. Private Practitioners
12 ☐ 4. Other:(Specify)_____

(22) Is any member of the family suffering from any chronic dis:

13 ☐ 1. Yes_____ 2. No _____

14 ☐ (23) If yes, number of members suffering:

(24) Give particulars:

15 ☐
16 ☐

1. T.B.
2. Leprosy
3. Disability
4. Others (Specify)_____
9. Not applicable

/.....

17 ☐ 18 ☐ 19 ☐ (25) Is any child suffering from:

1. Physical disability
2. Mental retardation
3. Speech defects
4. Visual Impairment
5. Hearing defects
6. Discharging ear
9. Not applicable

20 ☐ (26) Number of children suffering: _____

(27) Particulars of the children

	S.No.	Name	Age months		Sex 1.M 2.F	Disability	
21 - 24	1.						
25 - 28	2.						
29 - 32	3.						
33 - 36	4.						

(Not to be filled in front of the family members)

(28) Cooperation shown by the respondent:

37 ☐

1. Cooperative
2. Uncooperative

(29) General Observations of Cleanliness, etc:

_____

_____

_____

Time taken_____

Full name of the interviewer_____

Team No. _____

ANNEX 1

Ministry of Health and Family Welfare

SECRETARY

Additional Secretary

Department of Health (Medical and public health, drug control and prevention of food adulteration)

Joint Secretary

Additional Secretary and Commissioner

Department of Family Welfare (Family Welfare and Control of Diseases)

Joint Secretary

Deputy Commissioner Maternal and Child Health and EPI (In charge of EPI implementation, management and monitoring)

DIRECTORATE GENERAL OF HEALTH SERVICES (An attached office under the Ministry of Health and Family Welfare to render technical advice on all medical and public health problems)

Director General

Additional Director General

Deputy Director General (EPI) (Vaccine production)

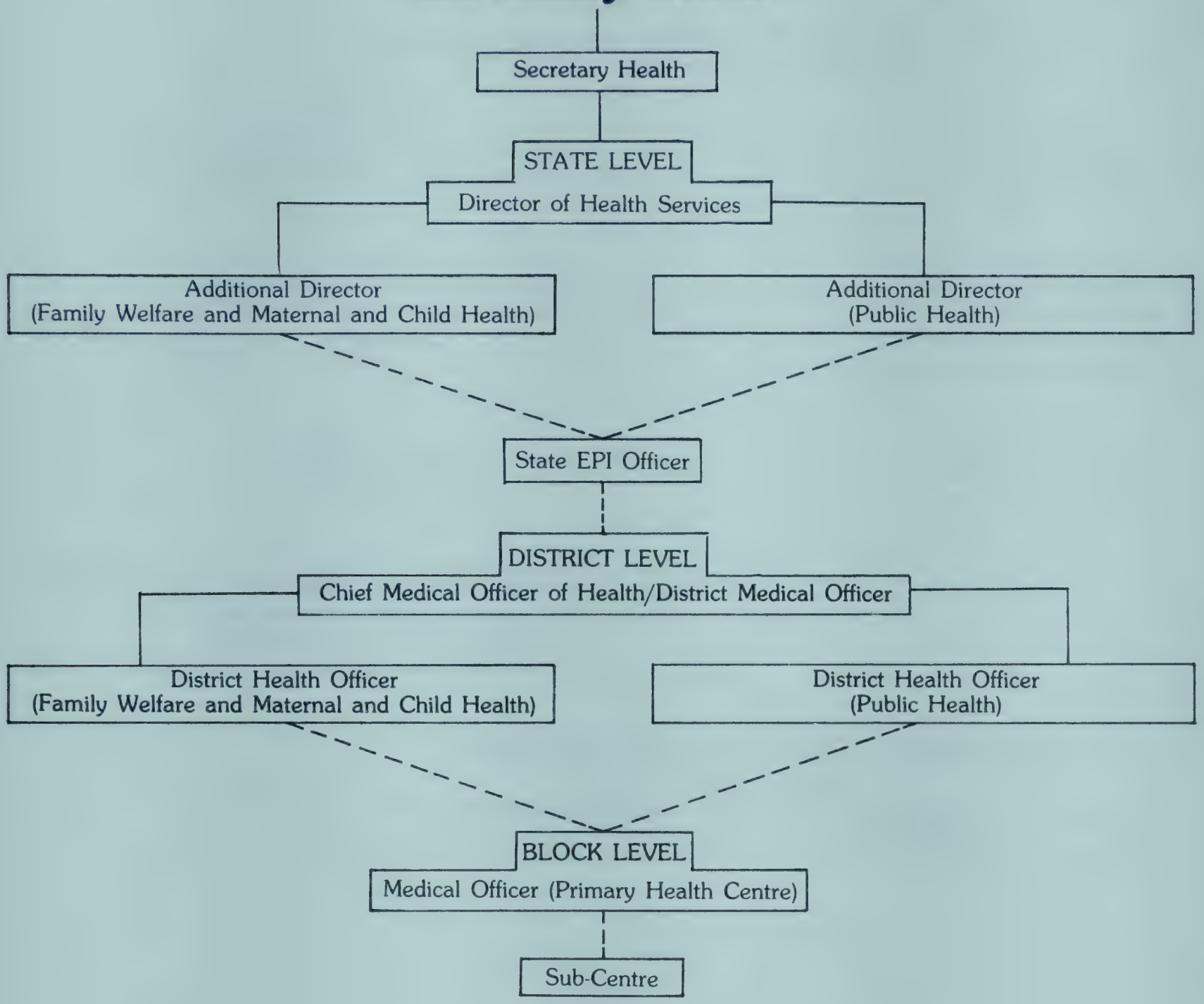
Assistant Director General (EPI) (Review, implementation and monitoring of the programme) .

Deputy Assistant Director General (Vaccine requirements, compilation of data, reports and other studies)

EPI SECTION

ANNEX 2

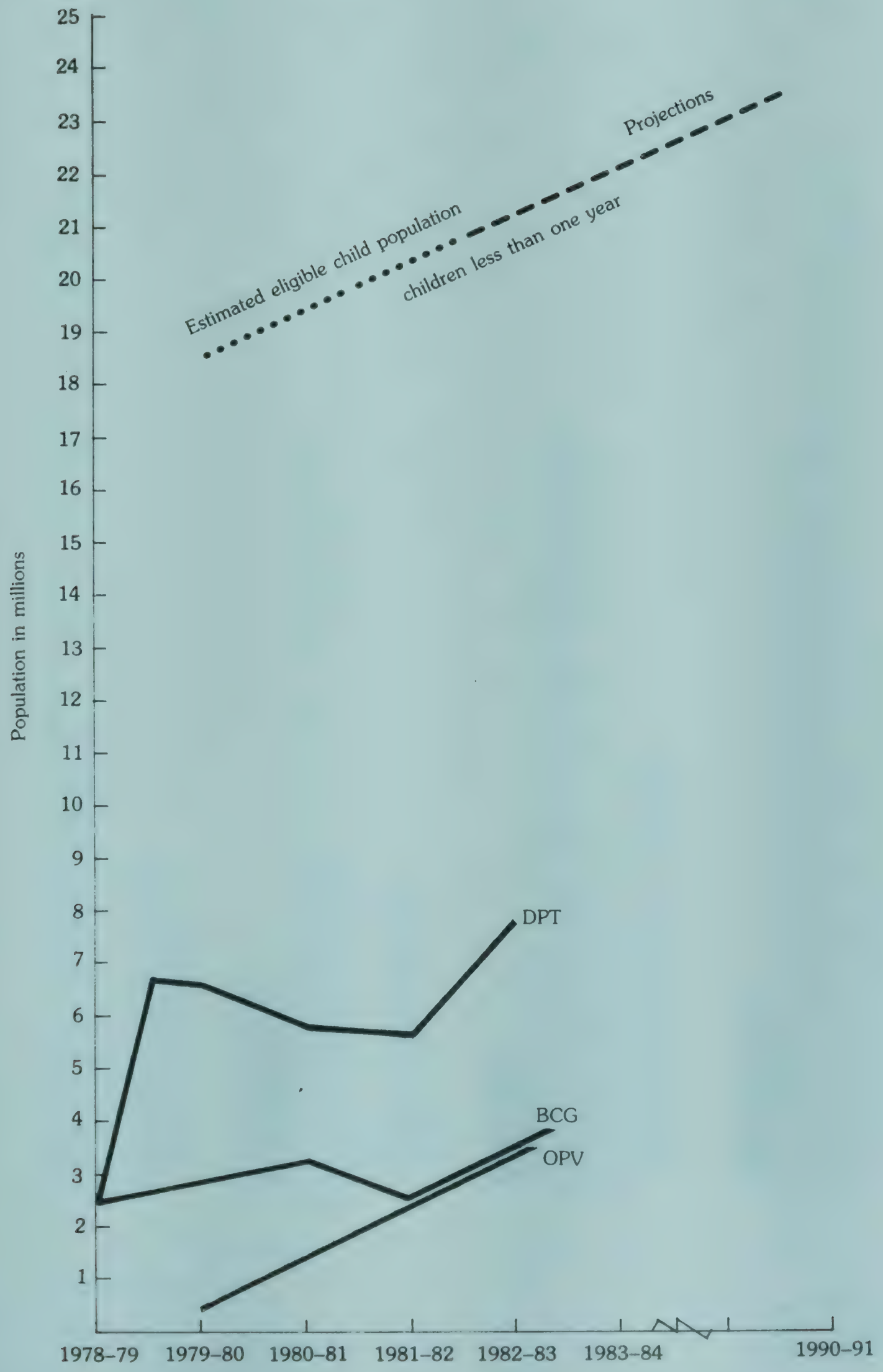
State Department of Health and Family Welfare



Note: In some states EPI is either under the section of Family Welfare and Maternal and Child Health or the section of Public Health and hence the dotted lines.

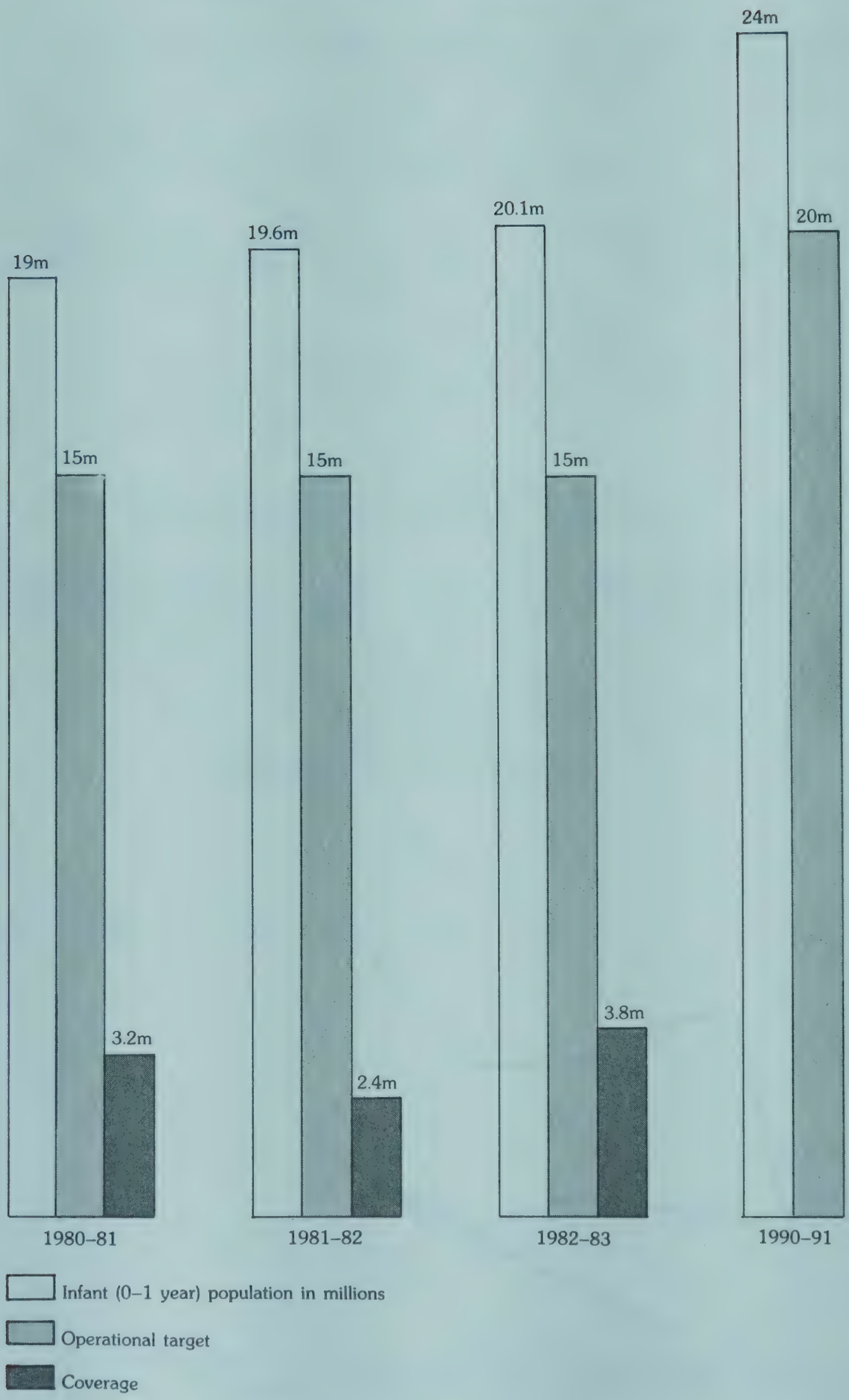
ANNEX 3

Vaccination coverage in India



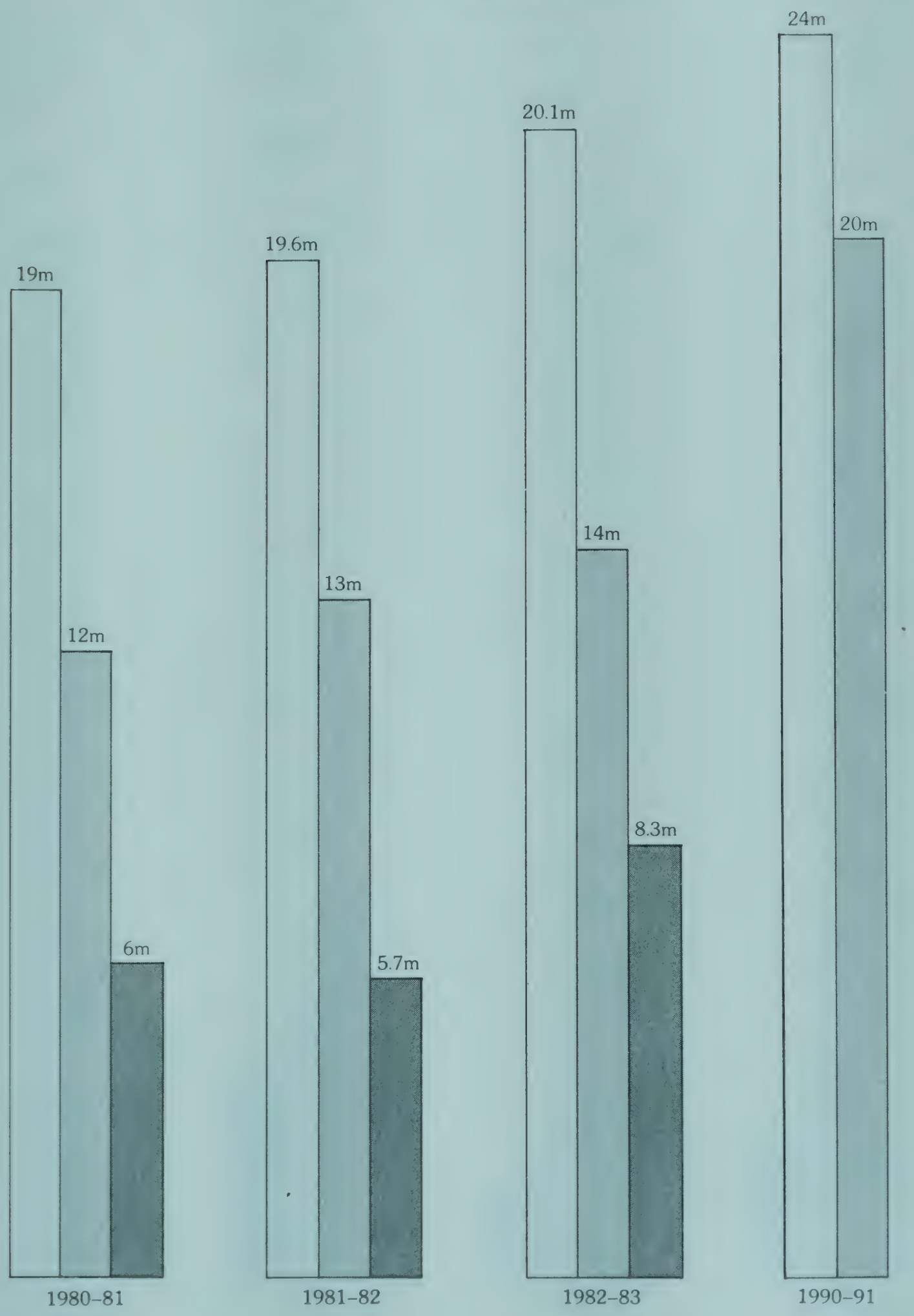
ANNEX 4

BCG coverage



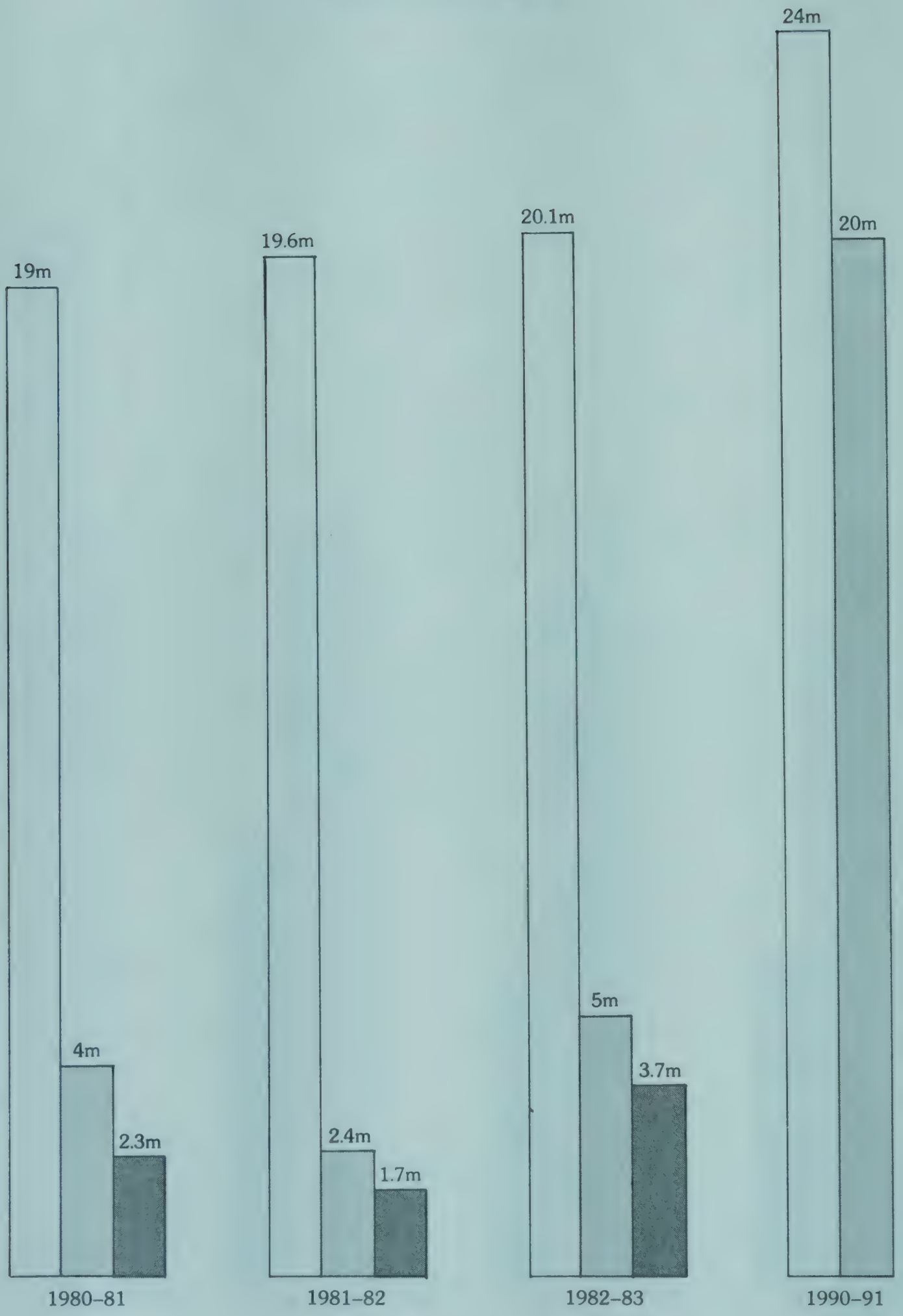
ANNEX 5

DPT coverage



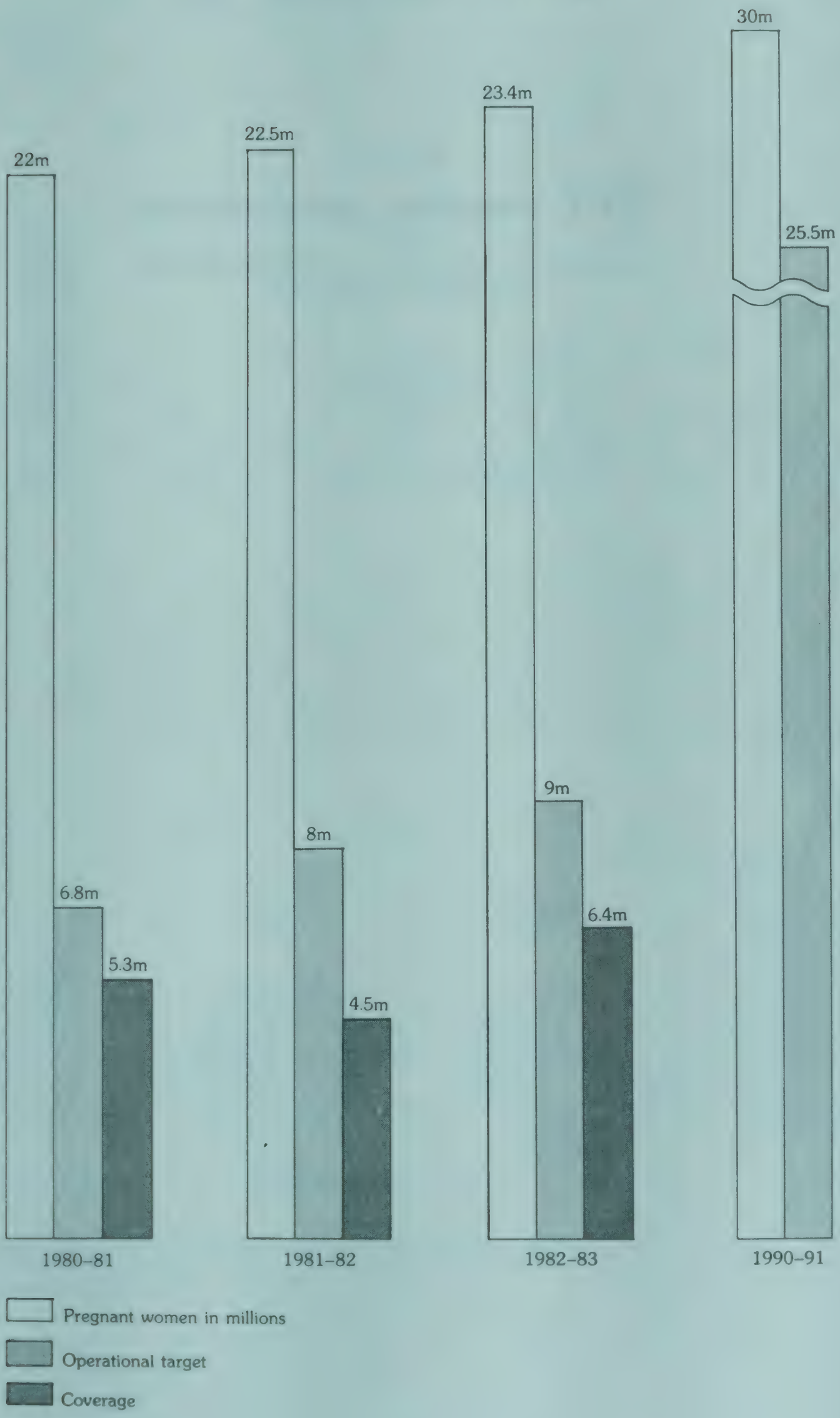
ANNEX 6

Polio coverage



ANNEX 7

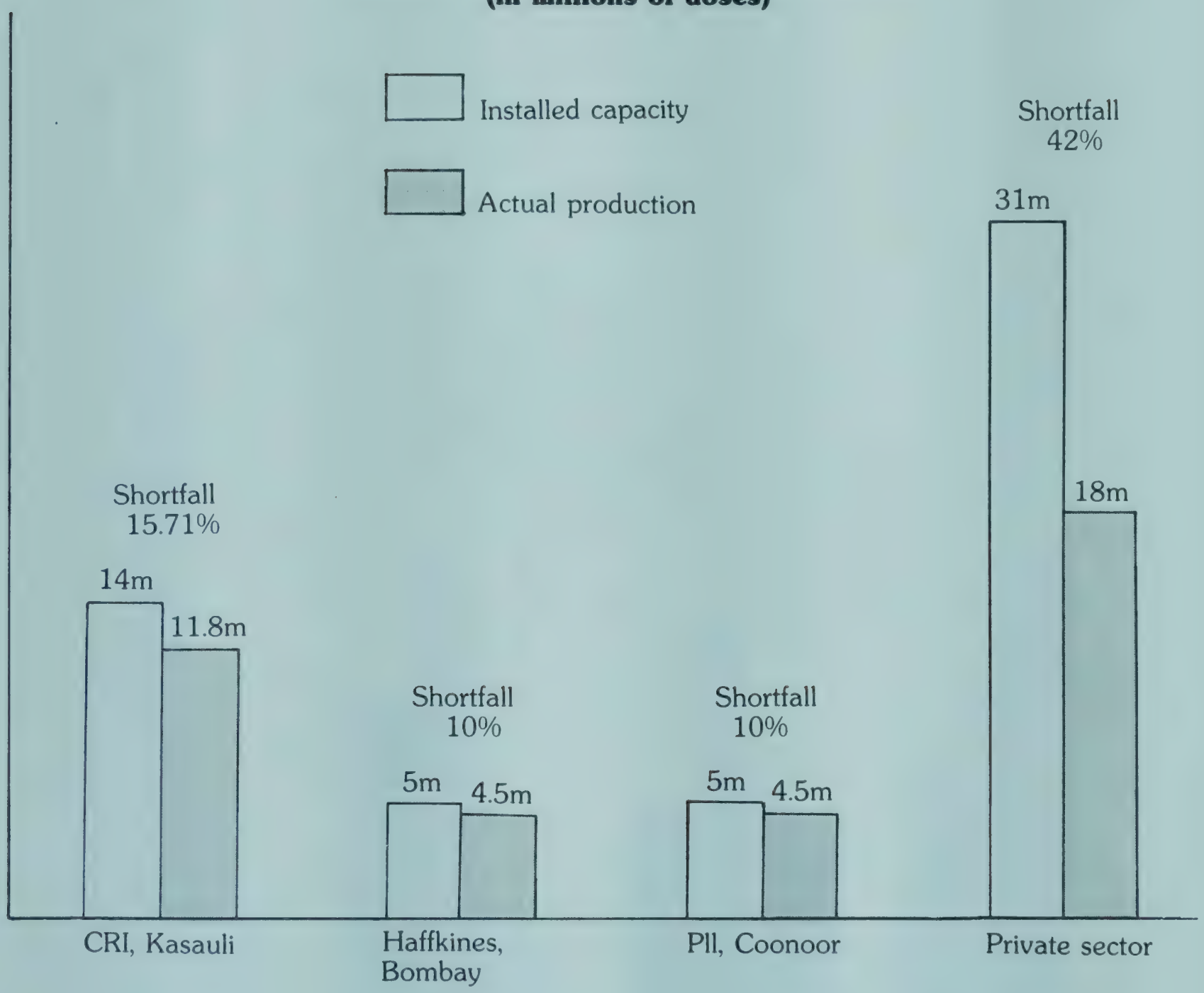
Tetanus toxoid coverage



ANNEX 8

DPT vaccine production

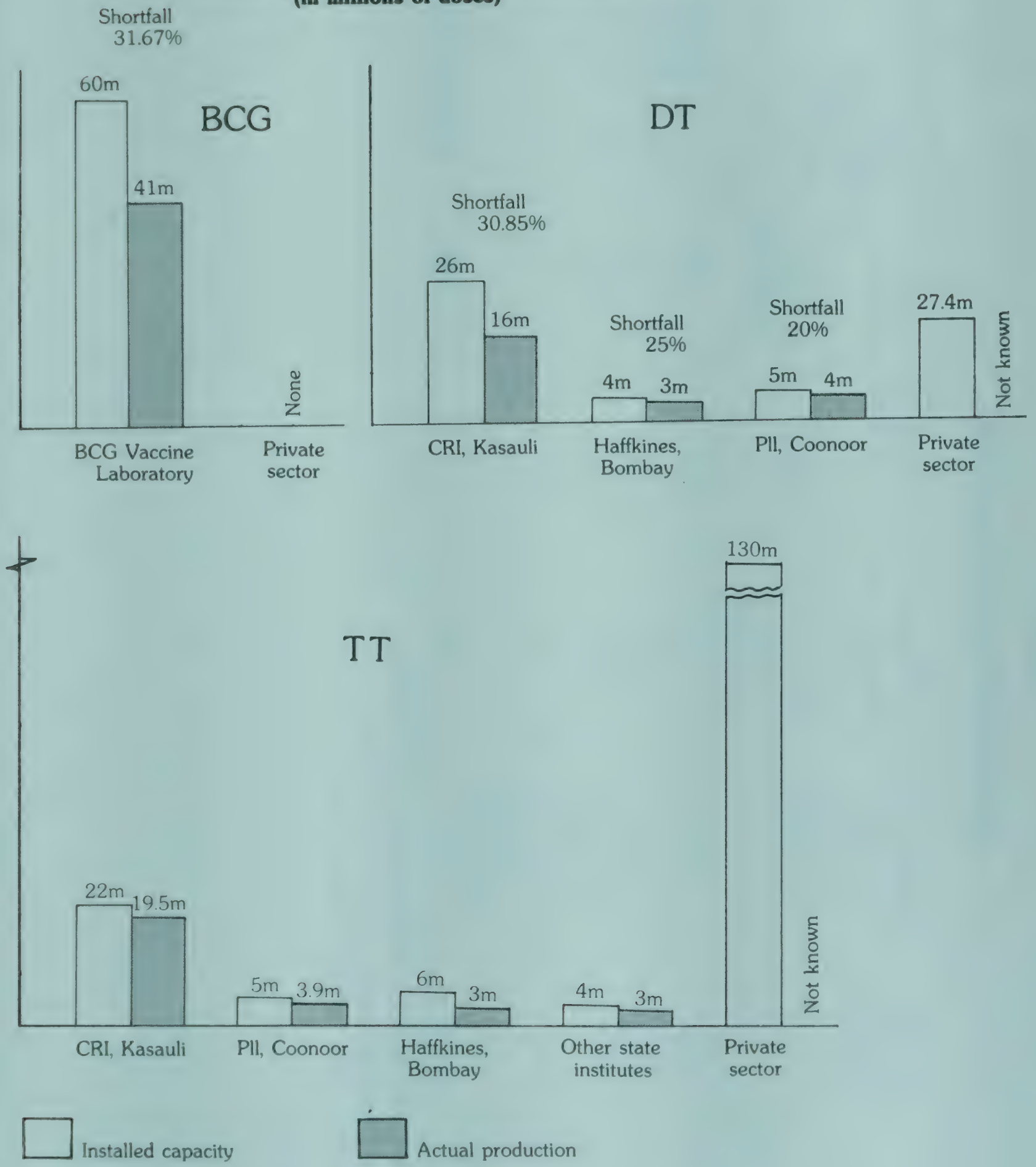
Installed capacity against actual production
(in millions of doses)



ANNEX 9

Vaccine production

Installed capacity against actual production (in millions of doses)



Note: Haffkine Bio-Pharmaceutical Corporation Limited, Bombay has the capacity to reconsititute 40 million doses of polio vaccine out of imported vaccine bulk.

ANNEX 10

Availability of vaccine

Vaccine	Eligible population in millions	Population for 85% coverage for herd immunity in millions	Minimum vaccine required for 85% population+ 30% wastage in millions of doses	Vaccine availability in millions of doses		Cost of vaccine required by 85% eligible population
				Production 1982	Expected procurement 1984/1985	
DPT	21.66	18.4	71.76	42	—30*	Rs. 87,120,000
Polio	21.66	18.4	71.6	00	—72*	Rs. 29,196,000
BCG	21.66	18.4	23.6	22.5	—1.5*	Rs. 2,944,000
TT	24.75	No herd immunity	32.0	47	+15*	Rs. 4,300,000
		Individual protection important				
Measles	21.66	18.4	23.9		—24*	Rs. 48,000,000

Total vaccine cost to immunize 85% of eligible population—Rs. 171,560,000.

Total vaccine cost to immunize targets set by GOI—Rs. 120,000,000.

The gap between the two is Rs. 51,560,000—for vaccine only.

—*=For import

+*=For export or other functions (e.g. TT used for boosters and family welfare work intensification).

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